TECHNICAL DOCUMENT 3217
December 2005

JPEO-CBD
Software Support Activity
Annual Report 2005

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ADMINISTRATIVE INFORMATION

This report provides an annual historical record of the efforts performed by the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) Software Support Activity (SSA) for Calendar Year 2005. The JPEO-CBD SSA is managed by the Space and Naval Warfare Systems Center San Diego (SSC San Diego) and is directed by the Space and Naval Warfare Systems Command. The SSA is a team composed of government and contractor agencies that provide enterprise support in the key tenets of net-centric operations to U.S. Department of Defense chemical and biological programs.

Released by
D. R. Hardy, Head
Effects Based Information Systems

Under authority of
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Experimentation Division

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JPEO-CBD
Software Support Activity
Annual Report
2005

JPEO-CBD Software Support Activity

Fulfilling Our Mandate

"The SSA will provide services and coordination for IT products developed by the JPMs which contain data, software, or which are capable of, or have a requirement for future linkage to the Global Information Grid (GIG)."

Charter for the
Joint Program Executive Office (JPEO)
for Chemical and Biological Defense (CBD)
Software Support Activity (SSA)

2005

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JPEO-CBD
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Executive Summary

2005

Executive Summary - 2005 ~ Accomplishments

On 31 May 2005, Brig. Gen. Reeves signed the "Charter for the Joint Program Executive Office (JPEO) for Chemical and Biological Defense (CBD) Software Support Activity (SSA)," officially establishing the SSA. SSA was active throughout 2005 meeting its Chartered responsibilities and pursuing Brig. Gen. Reeve's vision of a fully integrated, net-centric suite of Chemical, Biological, Radiological, and Nuclear Defense (CBRND) systems, ready for interaction with the systems of other Communities of Interest (COIs).

> *The SSA will pursue "Jointness", net-centric warfare and work to promote... interoperability, and... integration...* [SSA Charter, paragraph 6.3]

"Jointness"

SSA was on the road in 2005 to introduce itself to the JPEO-CBD Joint Project Managers (JPMs), the Joint Requirements Office (JRO) CBRND Capability Areas (SENSE, SHIELD, SHAPE, and SUSTAIN), and the programs under JPM IS (Joint Effects Model (JEM), Joint Operational Effects Federation (JOEF), and Joint Warning and Reporting Network (JWARN)). Between June and October, SSA provided introductory "Roadshow" presentations to each of these organizations. These Roadshows established contacts and launched initiatives that built a foundation on which SSA will continue to build, moving toward bringing Brig. Gen. Reeve's vision to reality.

> *Support the creation and maintenance of a Data Model and Data Warehouse to service all JPM IT product requirements.* [SSA Charter, paragraph 5.4.2]

> *Help to establish consistency of CBRN Data Schema, Data Model and Extensible Markup Language Data Exchange across JPEO-CBD.* [SSA Charter, paragraph 5.4.3]

As noted by JPM Information Systems (JPM IS), Capt O'Keefe,[1] "Data interoperability has made its way to the forefront of the battle to improve the interoperability of Department of Defense (DoD) systems...." He established the JPM IS Data Initiative to address this issue. The SSA was active in 2005, both with the JPM IS Data Initiative and in meeting its Chartered requirements. They acted as a liaison for the Data Initiative with numerous CBRN commands and programs.

The SSA Data Management Team, in conjunction with the JPM IS Data APM, continued to develop and refine the CBRN Data Model. Version 1.2 was re-

Special points of interest:

- ✓ SSA officially Chartered on 31 May 2005
- ✓ 13 Introductory "Roadshows" conducted
- ✓ Data Model versions 1.2 and 1.3 released
- ✓ CBD IT Help Desk brought online
- ✓ Architecture products repository established on JPEO-CBD IDE
- ✓ Standards & Policy repository established on JPEO-CBD IDE
- ✓ CBRN COI ⇔Medical COI initiative advanced
- ✓ JCBRND CMP in development for maintenance of Enterprise Architecture and Data products
- ✓ Support to CBIS 2005
  - Presentation: "Net-Ready CBRN Sensors - The Way Ahead"
  - Demonstration: CBRN ⇔MSAT

[1] "The JPM Information Systems CBRN Data Initiative", Capt. Tom O'Keefe, USN, Chem-Bio Defense Quarterly magazine, Jul-Sep 2004

leased in April 2005 and Version 1.3 was released in October 2005. Other efforts in furtherance of the CBRN Data Model included:

- Support for the development of a CBRN eXtensible Markup Language (XML) schema to provide an XML format for data exchange within the CBRN community.
- Development of a paper entitled "Data Model Technical Implementation Approach and Guidance", and presented it at the 2005 CBIS S&T Conference, providing a methodology for utilizing the CBRN Data Model in a Service Oriented Architecture (SOA).
- Establishment of a CBRN Sensor Data Working Group to develop and refine sensor representation in the CBRN Data Model.

> *A…"Joint Configuration Management and Release Plan" applicable to [JRO-CBRND and JPEO-CBD] will be developed…* [JRO-CBRND and JPEO-CBD Stewardship of CBRN Architecture Products MOU, paragraph 3.B.1)]

The SSA worked with JRO-CBRND and JPEO-CBD to develop a Memorandum of Understanding (MOU) on "Stewardship of Department of Defense (DoD) Chemical, Biological, Radiological, and Nuclear (CBRN) Architecture Products". The MOU was signed by Brig. Gen Reeves on 11 July 2005 and by Maj. Gen. Bromberg on 18 July 2005. SSA began implementation of the MOU by drafting a Joint CBRND (JCBRND) Configuration Management Plan (CMP). This document was put out for review, with comment resolution in progress at the close of 2005. This CMP will establish a JCBRND Change Control Board (CCB) to manage the Enterprise Architecture and Data Model products.

> *Collaborate throughout the JPEO-CBD community to establish and maintain an archive of supporting integrated architecture products required to assess information exchange and use…*
> [SSA Charter, paragraph 5.2.3]

The SSA established an Enterprise Architecture Repository on the JPEO-CBD Integrated Digital Environment (IDE) website. This repository has been populated with DoD Architecture Framework (DoDAF) products for JPM IS and JRO SHAPE. This will also contain the DoDAF products comprising the Enterprise Architecture.

Net-Centricity

> *Maintain and shape the Integrated Architecture to address… emerging requirements, including transition and mapping to the GIG 2.0 and the NCOW RM.* [SSA Charter, paragraph 5.3.1]

In support of moving CBRN toward net-centricity, the SSA Architecture Team was active in numerous forums and technical interchange meetings that promoted DoD net-centric initiatives, including Global Information Grid (GIG), Net-Centric Enterprise Services (NCES), and Net-Centric Operations and War-

"This Charter establishes the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) Software Support Activity (SSA) as a JPEO-CBD support organization…. It is managed under the Joint Project Manager for Information Systems (JPM IS)…"

Charter for the
Joint Program Executive Office (JPEO)
for Chemical and Biological Defense (CBD)
Software Support Activity (SSA)

CAPT Thomas O'Keefe
Joint Project Manager
Information Systems

◖ Programs ◗

JWARN
Joint Warning and Reporting Network

JEM
Joint Effects Model

JOEF
Joint Operational Effects Federation

fare Reference Model (NCOW RM). They also participated in conferences that advanced these efforts. As an example, they developed a white paper entitled, "Net-Ready CBRN Sensors – The Way Ahead…" and presented it at the 2005 CBIS S&T Conference.

The Data Management Team worked with numerous Discovery Metadata working groups to understand how data and web services will be discovered within the NCES.

The SSA also helped to produce contract language that will ensure a net-centric emphasis in future project and program contracts.

Interoperability and Integration

> *Collaborate with CBRN communities, JPMs, JPEO-CBD Directorates, users, Service Representatives, Office of the Secretary of Defense (OSD) policy officials, joint review authorities, and other government and non-government agencies to ensure that all software related requirements are understood and represented…* [SSA Charter, paragraph 3.2]

In addition to actions to promote interoperability within the CBRN COI, SSA pursued opportunities to advance the process of integrating the CBRN COI with other COIs. This included participating in the DOD COI Forum and presenting an overview on COI interactions, and in discussion with various other COIs, such as the Medical community.

After the introductory discussions with the JPMs and recognizing CBRN medical requirements that were very broadly defined, the SSA began working with the medical community to uncover that communities medical data representation and begin promoting COI to COI information sharing, as opposed to the current method that leads to system to system interfaces.

With the assistance of the JRO SHAPE action office, an initial technical discussion with medical representatives was held, that led down several paths in an effort for collaboration between the communities. The most productive path led to the Medical Situational Awareness in Theater (MSAT) Advanced Concepts Technology Demonstration (ACTD) that has CBRN requirements in its objectives, and a collection of key medical systems (and databases). SSA presented and demonstrated a paper on what an integrated CBRN/Medical capability might look like at the October 2005 CBIS S&T Conference, and then in November was able to demonstrate in cooperation with MSAT ACTD engineers the movement of a NBC message, including enhanced plume data, to the notional medical common operational picture as part of the MSAT ACTD Demonstration of CBRN/Medical use cases to Ms. Ellen Embrey (Deputy Assistant Secretary of Defense (DASD) for Force Health Protection and Readiness (FHP&R)) and Admiral Hufstader (US Pacific Command (PACOM) Surgeon General).

SSA also interacted with the Army Warfighter Mission Area (WMA) Integrated Working Team (IWT) to promote understanding and to educate attendees on the JCBRND architecture and the need for interoperability between the JCBRND architecture and the Army's LandWarNet and Army Battlefield Command Systems (ABCS).

◖ JPEO-CBD JPMs ◗

COL Dan Berry
Biological Defense

COL Steve Berté
Chemical Biological Medical Systems

Mr. Stan Enatsky
Collective Protection

COL Don Burnett
Contamination Avoidance

COL Dale Takenaka
Decontamination

COL Camille Nicols
Guardian

Mr. Jim Nelson
Individual Protective Equipment

CAPT Thomas O'Keefe
Information Systems

As an element of the JPM IS, SSA was active during 2005 with the programs under JPM IS (JEM, JOEF, and JWARN). This included such things as:

- DoD Information Technology Security Certification and Accreditation Process (DITSCAP) support,
- In Progress Review (IPR) support
- JWARN Interface Requirements Specification (IRS) support

> ***Establish a repository of standard processes, interfaces, guidelines, protocols… and templates for JPEO-CBD applications…***
> [SSA Charter, paragraph 5.2.1]

The S&P Team established the structure of and began populating the S&P Repository on the JPEO-CBD Integrated Digital Environment (IDE) website with policies, standards, guidelines, templates, frameworks, checklists, and Joint Capabilities Integration and Development System (JCIDS) material. At the end of 2005 there were more than 200 items in the repository.

> ***Coordinate information assurance activities across JPMS to promote commonality of services in meeting security standards…*** [SSA Charter, paragraph 5.2.4]

In conjunction with the JPM IS Security Team, the SSA Information Assurance (IA) Team was active in 2005 supporting Certification and Accreditation (C&A) of CBD programs. This support included:

- Production of System Security Authorization Agreements (SSAAs) for seven programs
- Submission of Authorities to Operate (ATOs) and Interim ATOs for four programs
- Certification Test and Evaluation (CT&E) testing for six programs.

> ***Provide consistent processes and guidelines to JPEO-CBD programs for conducting program and model accreditation, data certification, and Independent Verification and Validation (IV&V).*** [SSA Charter, paragraph 5.5.3]

The I&T Team was active in 2005 providing M&S and IV&V support to all levels of command, from the Office of the Secretary of Defense (OSD) to individual programs, as well as support to international Chemical, Biological, Radiological, and Nuclear (CBRN) activities.

High-level support provided by the I&T Team included:

- Participation in the OSD CBRN Survivability Policy Working Group
- Providing subject matter expertise on the use of modeling and simulation (M&S) in a CBRN environment,
- Participation in the Joint Requirements Office (JRO) SHIELD Integrated Concept Team (ICT)
- Providing I&T and M&S requirements
- Participation in International Task Force (ITF) 49, which is coordinating U.S., Canadian, and United Kingdom CBR defense efforts in the area of Battlespace and Information Systems development.

Additionally, the I&T Team directly supported JPEO-CBD in major initiatives by developing the JPEO-CBD M&S Verification, Validation and Accreditation (VV&A) Guidelines and preparation of a white paper in support of the JPEO-CBD initiative to establish an M&S Center of Excellence.

> ***The SSA shall establish a Help Desk to serve as an initial point of contact for JPEO-CBD users that have… CBRN IT system and NSS related inquiries…*** [SSA Charter, paragraph 1.4]

Through its efforts in 2005, the SSA Help Desk Team was successful in bringing the initial capability of the Chemical and Biological Defense Information Technology (CBD IT) Help Desk online. The CBD IT Help Desk capability was stood up ahead of schedule in order to provide support to U.S. Army V Corp and its use of the JWARN and JEM products for planned operations. The challenge to get the CBD IT Help Desk online was met and it was taking calls by October 2005.

2005

Executive Summary - 2006 ~ The Way Forward

In 2006, SSA will continue to build on the foundations laid in 2005, and prior.

SSA plans to conduct a series of technical interchange meetings with the JPEO-CBD JPMs, as follow-ups to the Roadshows conducted in 2005. Additionally we hope to commence a second tier of Roadshows to organizations external to JPEO-CBD with a critical linkage to Chemical, Biological, Radiological, and Nuclear (CBRN) information technology across the Chemical Biological Defense Program (CBDP), for example, Defense Threat Reduction Agency (DTRA), Joint Science and Technology Office (JSTO), Operational Test Authorities (OTAs) and Test Executives, and Department of Homeland Security (DHS), amongst others.

The **SSA Architecture Team** will continue to expand its efforts to ensure that JPEO-CBD Information Technology (IT) efforts are represented correctly and integrated into the overarching Architectures of each of the Services and aligned with the Joint Chemical, Biological, Radiological, and Nuclear Defense (JCBRND) Architecture. This will include:

- Actively participating in the Architecture/Technical meetings of the Services and DoD key architecture efforts
- Engaging with and tracking key net-centric command and control (C2) and Command, Control, Communications, Computers and Intelligence (C4I) systems and net-centric infrastructure programs.
- Participating in key international, NATO, Coalition, and Joint Multinational architecture and IT events

The Architecture Team will also continue to implement the JRO-CBRND and JPEO-CBD Memorandum of Understanding (MOU) on Stewardship of Shared Architecture/Data Products. This will include:

- Continuing as co-Chair of the JCBRND AWG
- Beginning operations of the JCBRND Change Control Board (CCB)
- Establishing a distributed, configuration controlled enterprise architecture development environment

Finally, the Architecture Team will continue its efforts within JPEO-CBD, its Joint Project Managers (JPMs), and programs to promote interoperability, integration, and net-centricity.

The SSA **Data Management Team**, working with the JPM IS Data Acquisition Program Manager (APM), will continue their efforts to advance and refine the CBRN Data Model. The next release, version 1.4, is targeted for April 2006. They will pursue establishing a CBRN Community of Interest (COI) Conference, to provide a forum for collaboration on CBRN issues, and will also continue efforts to interact with other COIs, notably the Measurement and Signals Intelligence (MASINT) COI, the Department of Homeland Security (DHS) CBRN S&T COI, the Health/Medical Health Systems (MHS) COI, and the Meteorological and Oceanographic (METOC) COI.

The **Information Assurance (IA) Team** will continue to provide professional Certification and Accreditation (C&A) support to JPEO-CBD JPMs. They will continue to track the Department of Defense (DoD) transition from the DoD

Key SSA Goals in 2006

- ✓ Conduct SSA Roadshow follow-up meetings with JPMs
- ✓ Commence JCBRND CCB operations for enterprise Architecture and Data Model products
- ✓ Pursue establishing a distributed, configuration-controlled enterprise Architecture development environment
- ✓ Assist in updated releases of the CBRN Data Model
- ✓ Pursue establishing a CBRN COI Conference
- ✓ Track the transition from DITSCAP to DIACAP for security Certification and Accreditation
- ✓ Pursue adoption of the JPEO-CBD M&S VV&A Guidelines as a standard by ITF-49
- ✓ Develop a JPEO-CBD Standard Operating Procedure (SOP) for Information Support Plan (ISP) production
- ✓ Conduct Help Desk Roadshows to JPMs

Information Technology Security Certification and Accreditation Process (DITSCAP) to the DoD Information Assurance Certification and Accreditation Program (DIACAP). They will pursue establishing a JPEO-CBD-wide IA Working Group, which will provide a forum for interaction and education on matters concerning protection of IT systems.

The **Integration and Test (I&T) Team** will continue efforts to define an overarching Modeling and Simulation (M&S) strategy within JPEO-CBD, which would allow the application of M&S lessons learned and reuse strategies. They will also continue to support JPMs in development of M&S Verification, Validation, and Accreditation (VV&A) requirements and, if requested, provide oversight in the execution of VV&A processes. The I&T Team will update the JPEO-CBD M&S VV&A Guidelines in 2006 to include emerging Joint requirements and inputs from Canadian and United Kingdom partners. They will also work with International Task Force (ITF) 49 to attempt to get the Guidelines adopted as a standard.

The **Standards and Policy (S&P) Team** will continue support to the Assistant Secretary of the Army for Acquisition Logistics and Technology ASA (ALT), including:
Identification and collection of metrics to assist in improving the acquisition of software systems
Coordination of training by the Software Engineering Institute (SEI), Carnegie Mellon University, on software product lines. Studies have documented significant savings in cost and time using product line development.

The S&P Team will continue to populate and refine the S&P Repository on the JPEO-CBD Integrated Digital Environment (IDE) website. Finally, the will work to produce a JPEO-CBD Standard Operating Procedure (SOP) on production of an Information Support Plan (ISP).

The SSA **Help Desk Team** will conduct a series of Help Desk Roadshows, to continue to advance SSA toward meeting its Chartered goal of being the initial point of contact for JPEO-CBD users with CBRN and National Security Systems (NSS)-related questions. These roadshows will seek to educate the JPMs on the Help Desk services that are available, and gather information from the JPMs that will enable planning support to them.

The SSA will continue participation in various CBRN-related conferences, such as the Joint CBRN Conference and Exhibition (JCCE), previously known as the World Wide Chemical Conference (WWCC), and the Science and Technology for Chem-Bio Information System (S&T CBIS) Conference.

SSA will continue to enhance its organization and staffing in 2006. Much of the staff will receive training in the Department of Defense Architecture Framework (DoDAF), to promote understanding and fluency in this key methodology.

> ***The SSA will strive toward certification of Capability Maturity Model Integrated (CMMI) Level 3 environment with all associated processes...*** [SSA Charter, paragraph 6.4]

SSA is preparing for and expects to undergo an informal Standard Capability Maturity Model Integration (CMMI) Assessment Method for Process Improvement (SCAMPI) in May 2006, to access SSA's process maturity level. Depending on the outcome of the informal assessment, a formal assessment may be scheduled for August 2006. These initial assessments will be for a CMMI Level 2 rating, but the follow-on goal, as specified in the SSA Charter, is to achieve a Level 3 rating.

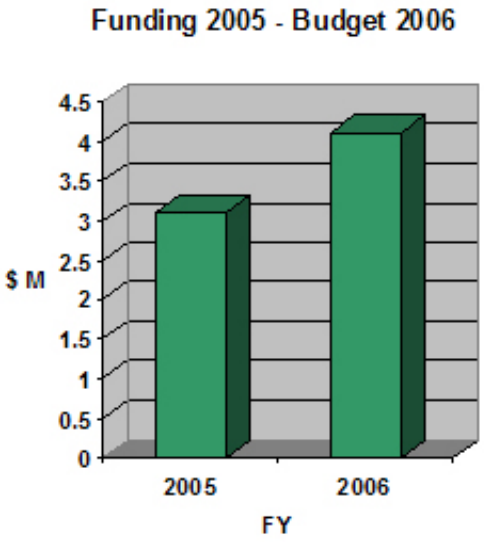
2005

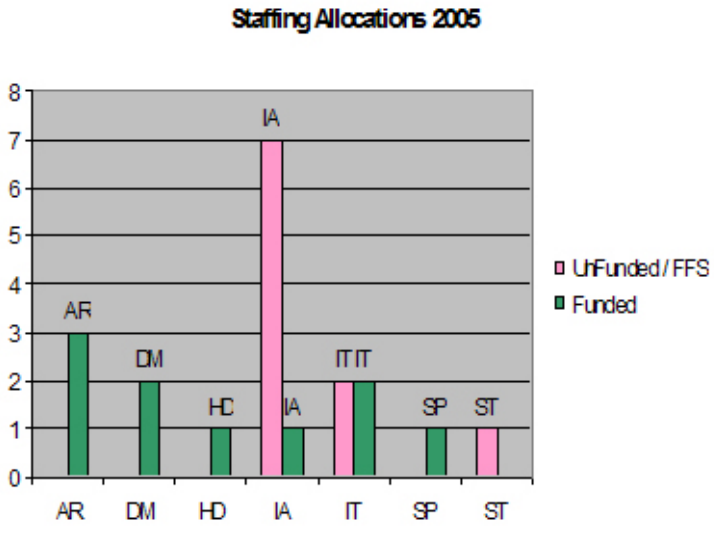
Organization & Staffing

The SSA was formed to provide services and coordination for IT products developed by the JPMs that contain data, software, can be connected to a network and/or information system. As an enterprise activity for the JPEO-CBD, the SSA is funded directly by the JPEO-CBD under the oversight of the Information Systems JPM (JPM IS). The JPEO-CBD is working to have the DATSD(CBD) direct BA6 funding to support the SSA as an on-going support activity.

Through its coordination with the various JPMs, the SSA at times exceeded its resource level, and subsequently requested "fee-for-service (FFS)" through statements of work with specific JPMs.

- This was particularly true for the information assurance area, which was an unfunded area of the SSA in 2005. By its nature IA solutions are normally specialized and unique to various programs because of the intended use and configurations of the systems, related networks and facilities. Thus the IA team provided Statements of Work to respective JPMs to perform various IA activities.
- Modeling and Simulation became a factor in 2005, after the approval of the M&S VV&A Guidelines document. Because it was program specific, the Integration and Test team which has M&S under its purview worked a fee-for-service with JPM IPE to develop an overarching M&S Strategy for that program.
- Science and technology transition manager was stood up in late 2005 to deal with numerous technology transition agreements and proposals.



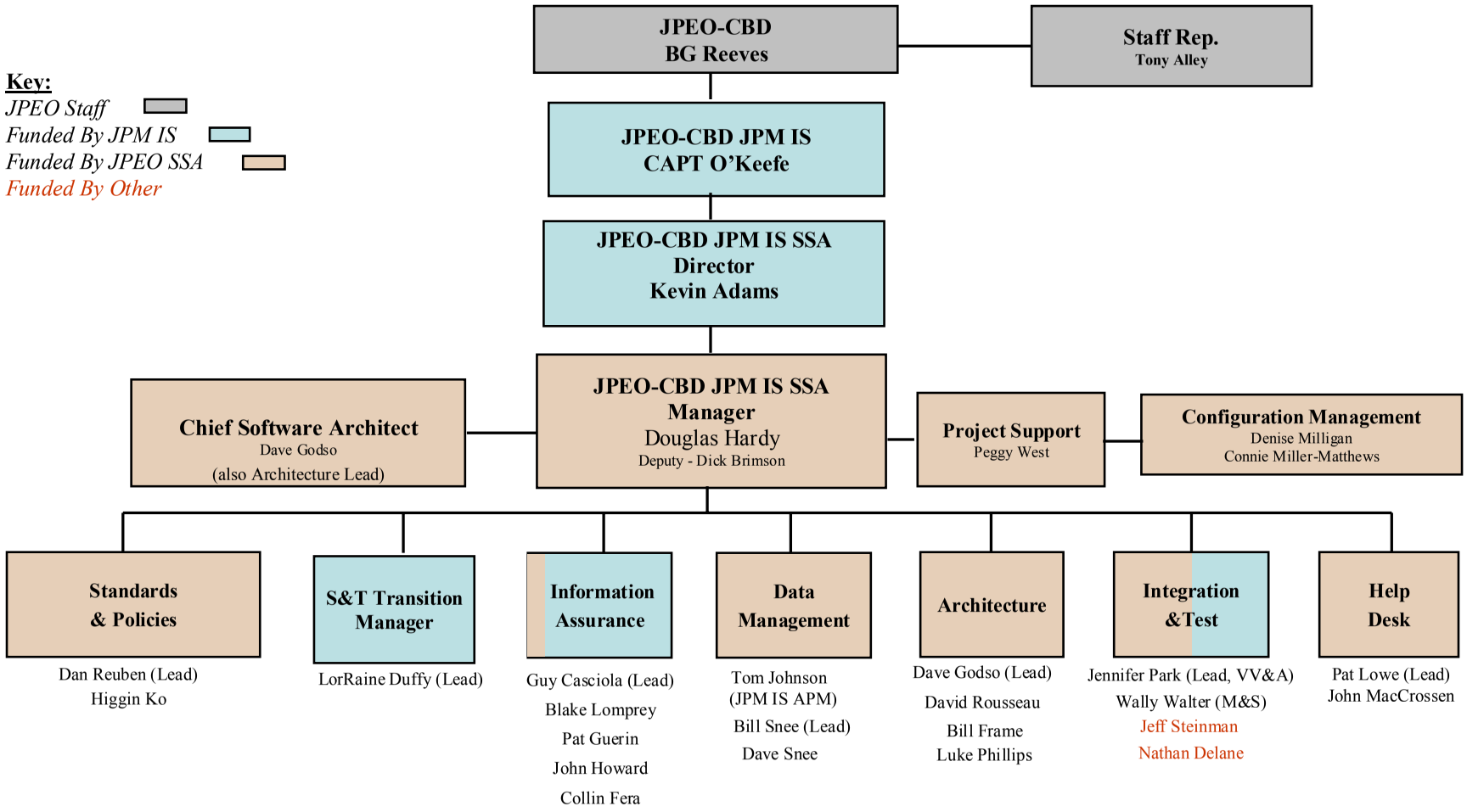


As SSA functional areas mature in 2006, and increase involvement with the various JPMs, staffing allocations will need to be adjusted to provide the necessary support. Steps were taken in late 2005 to begin to address the perceived needs for 2006, with additional resources being targeted to all functional areas as funding becomes available. An organization chart is located on the next page.

Besides the functional areas, a closely related area of support provided in 2005, was Configuration Management. CM support was established as a result of the MOU established between the JRO and JPEO-CBD related to the stewardship for architecture and data products. This support will likely grow as more IT products are defined by the JPMs across the enterprise.

Another area that has been discussed in late 2005, is that of software maintenance and software support facilities (SSF). This is an SSA unfunded potential area that needs further resolution and clarity in 2006, but is apparently a growing concern across the enterprise.

SSA Organization & Staffing



2005

Metrics

Architecture:

- Number of programs assisted in implementing web-services - 2
- Number of programs for which required engineering artifacts were produced - 3
- Number of programs for which required engineering artifacts were reviewed - 15
- Architectural Issues Resolved Impacting More than One Program of Record – 7
- JCBRN Architecture Working Group Meetings – 7
    - Jul 2005 – membership at 9, representing 2 organizations (Joint Requirements Office (JRO), Joint Project Manager, Information Systems (JPM IS))
    - Dec 2005 – membership at 14, representing 4 organizations (JRO, JPM IS, JPM Contamination Avoidance (CA), JPM Guardian)
- New Technology evaluated – 2
    - STIRS (Smart Threads Integrated Radiation Sensors)
    - E-Smart (Electronically Smart C2 situational awareness and integrated sensors)

Data Management:

- Number of comments received from external sources to change data model - 1425
    - 14 submitted as SSA Product Change Requests (PCRs)
    - 1100 (estimated) submitted as JPM IS Data Initiative PCRs.
    - 250 submitted as part of the JRO Joint Staff Action Processing (JSAP).
    - 159 submitted as Data Model Technical Review (Sensors).
- Number of organization representatives requesting full Data Model release: 110
    - Estimate based on version 1.2 email release list.
- Chemical, Biological, Radiological, and Nuclear (CBRN) Data Model Working Group Meetings – 1
    - Jul 2005 – attendance at 70, increase 75% from previous year
- Sensor Data Model Working Group Meetings – 1
    - November 2005 (initial meeting of this Working Group)
- Number of new programs briefed on the Data Model: 11

Area Security Operational Command & Control (ASSOC)

- Integrated Information Management System (IIMS)
- Shared Common Operational Picture (COP)
- JPM Guardian
- Joint Total Asset Visibility Reporting Warehouse (JTAVRW)
- JRO SHAPE
- Joint Acquisition Chemical Biological Radiological Nuclear Knowledge System (JACKS)
- Joint Equipment Assessment Program (JEAP)
- Joint Logistics Advisory Council (JLAC)
- Health/Medical Health Systems (MHS) Community of Interest (COI)
- Defense Science and Technology Laboratory, United Kingdom

Standards & Policy (S&P):

- Total items in S&P Repository: 217
- Number of acquisition products reviewed or supported – 8
    - JPM IS Enterprise Systems Engineering Plan (SEP)
    - Joint Effects Model (JEM) SEP
    - Joint Operational Effects Federation (JOEF) SEP
    - Unified Command Suite SEP
    - Joint Warning and Reporting (JWARN) Information Support Plan (ISP)
    - JEM ISP

- JOEF ISP
- Net Centric Contract Language

- Number of Assistant Secretary of the Army for Acquisition Logistics and Technology (ASA (ALT)) Training Courses taken: 5
  - Software Architecture: Principles & Practices
  - Architecture Design & Analysis
  - Software Product Lines
  - Documenting Software Architectures
  - Introduction to the Capability Maturity Model Integration (CMMI)
- Number of Miscellaneous Taskers reviewed and supported: 6
  - SPAWAR 4720.1 Draft -- new afloat/shore installation instructions
  - Special Interest Task -102705-5577 - HOT: 2006 Army Modernization Plan
  - Task Number JPEO-081205-5397 - Net-Centric Enterprise Solutions for Interoperability (NESI) Terms of Reference (TOR)
  - Flag Officer/General Officer (FOGO) Level Review of the Net-Centric Enterprise Services Capability Development Document (CDD) V0.9.0
  - Task Number JPEO-041405-5142 - Colonel Level Review of the Net-Centric Enterprise Services CDD
  - Draft Department of Defense (DoD) Strategy For Homeland Defense And Civil Support

Information Assurance (IA):

- Number of System Security Authorization Agreement (SSAA) in development – 2
  - ICIDS
  - IDE
- Completion of SSAA development - 5
  - JWARN Initial Capability (JIC) Phase 3
  - JEM Phase 3
  - JOEF Phase 1
  - Installation Protection Program (IPP) Command, Control, Communications, Computers and Intelligence (C4I) Phase 1
  - IPP C4I Phase 2
- Completion of SSAA reviews - 4
  - IPP C4I
  - JWARN Block 1D
  - Joint Biological Agent and Identification System (JBAIDS)
  - Multipurpose Integrated Chemical Agent Detector (MICAD)
- Certification and Accreditation (C&A) Testing performed - 22
  - 4 – JWARN - Increment 1 – Pre-Certification Test and Evaluation (CT&E)
  - 8 – JWARN Block 1E – CT&E
  - 1 – JWARN Block 1D – CT&E
  - 5 – JEM – Pre-CT&E
  - 2 – JEM – CT&E
  - 1 – JEM – System Test and Evaluation (ST&E)
  - 1 – IPP C4I – CT&E
- Completed Information Assurance Strategy - 3
  - JEM
  - JOEF
  - JWARN
- Completed Security Classification Guide - 2
  - JOEF
  - JWARN
- Completed Program Protection Plan - 1
  - JWARN

Integration & Test (I&T):

- Number of programs providing Modeling and Simulation (M&S) and/or Verification, Validation and Accreditation (VV&A) support - 2

- JPM IS JEM Interim Authority To Operate (IATO) – Supported & reviewed Acquisition Strategy for M&S, Interim Accreditation Plan
- JPM IS JEM & JOEF – Reviewed, assessed Risk-Based Accreditation Methodology, Accreditation Plan, Acceptability Criteria Docs
- JPM Individual Protective Equipment (IPE) – Provided M&S Acquisition Strategy for overarching model
- JPM Guardian – Identified M&S capability gaps in the Research and Development (R&D) Acquisition (RDA) Plan
- JPM CA – Reviewed Accreditation Plan in support of Operational Test and Evaluation (OT&E) (JCLIST)

- Number of external I&T Coordination Meetings - 11
  - Reduced to the following…
  - Simulation Interoperability Standards Organization (SISO) (1)
  - Project Director of Test Equipment Strategy and Support (PD TESS) (4)
  - Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) T&E Integrated Product Team (IPT) (6)

Help Desk:

- Memoranda of Agreement (MOAs) for Help Desk - 2
  - 1 completed (between JPM IS and Joint System Support Knowledge Center (JSSKC))
  - 1 being written (between JPEO-CBD and JSSKC)
- Business Rules for Help Desk -3
  - 3 being written
    a. Defense Treat Reduction Agency (DTRA)
    b. Marine Corps Tactical Systems Support Agency (MCTSSA)
    c. Chemical Biological Response Aide (CoBRA)
- Number of trouble calls – 3
  - Number resolved – 1 (two were cancelled)
  - Average length of time to resolution – 50 minutes
- Number of Program links active on IT website – 2
  - JEM
  - JWARN
- Number of Programs using Help Desk or in-progress - 2
  - JWARN 1E (V Corps)
  - JEM (Development Test(DT))

Science and Technology (S&T) Transition Management Support:

- Number of Technology Transfer Agreements (TTAs) submitted – 23

Project Management Support :

- Action Items -354
  - 79 open
  - 275 closed (77.7%)
- DoD Architecture Framework (DoDAF) products on JPEO-CBD Integrated Digital Environment (IDE) (Configuration Management (CM) - Shared JRO/JPEO) – 3 programs
  - JEM
  - JOEF
  - JWARN
- Published papers/articles – 9
  - "CBRN-Medical Information Sharing" – S&T Chem-Bio Information Systems (CBIS) 2005
  - "Net Ready Sensors" – S&T CBIS 2005
  - "Data Model Implementation Approach" – S&T CBIS 2005
  - "JPEO-CBD VV&A Guidance" – International Task Forum (ITF-49)
  - "DoD CBRN Information Systems Development of Service-Oriented, Net-Centric, Secure CBRN Information System Capabilities" – Emerging Technology Summit, Keynote Speaker (April 2005)
  - "Cross-COI Coordination and Strategies for Implementing the Net Centric Vision in

Programs of Record" – COI Forum (June 2005)
    - "Intro to SSA" – Chem-Bio Defense (CBD) Quarterly magazine (1st Quarter FY06)
    - "Terrorist Threats…" – CBD Quarterly magazine (1st Quarter FY06)
    - "CBRN Integrated Architecture" – CBD Quarterly magazine (1st Quarter FY06)
- JPEO-CBD related Conferences supported – 4
    - S&T CBIS 2005
    - Decon 2005
    - SHAPE ICT
    - SHIELD ICT
- "Introduction to SSA" sites visited (Roadshow) – 14
    - All JPMs - 8
    - JRO SHAPE, SENSE, SHIELD, SUSTAIN – 4
    - Medical COI – 1
    - Measurement and Signature Intelligence (MASINT) COI - 1

SSA All Hands Meeting - August 2005

JPEO-CBD
Software Support Activity
Annual Report
2005

2005 ~ Accomplishments

2005

2005 ~ SSA Accomplishments

Introduction

SSA was on the road in 2005, introducing itself to the JPEO-CBD Joint Project Managers (JPMs), the Joint Requirements Office (JRO) CBRN Defense Capability Areas (SENSE, SHIELD, SHAPE, SUSTAIN), and the programs under JPM IS (JEM, JOEF, JWARN), and participating in numerous planning and technical meetings. Between June and October, SSA provided "Roadshow" presentations to each of these organizations. These Roadshows established contacts and launched initiatives that have begun to build the road that will lead to Brig. Gen. Reeve's vision of a fully integrated, net-centric suite of CBRND programs, ready for interaction with the systems of other Communities Of Interest (COIs).

In support of moving CBRN toward net-centricity, SSA was active in numerous DoD Net-Centric initiatives, including

- Global Information Grid (GIG)
- Net-Centric Enterprise Services (NCES)
- Net-Centric Operations and Warfare Reference Model (NCOW RM)

SSA participated in numerous forums, conferences, and technical interchange meetings for the mentioned initiatives, and others. SSA also helped to produce net-centric contract language that will ensure a net-centric emphasis in future project and program contracts.

Several SSA initiatives in 2005 laid the foundation for interoperability of CBRND systems. In addition to the introductory Roadshows, SSA established an Enterprise Architecture Repository on the JPEO-CBD Integrated Digital Environment (IDE) website, to contain the DoD Architecture Framework (DoDAF) products defining the Enterprise Architecture. SSA began implementation of the MOU between JRO-CBRND and JPEO-CBD on Stewardship of DoD CBRN Architecture Products. A draft JCBRND Configuration Management Plan (CMP) was produced and put out for review, with comments resolution in progress. This CMP will establish a JCBRND Change Control Board (CCB), to manage the Enterprise Architecture and Data Model products.

In addition to actions to promote interoperability within the CBRN COI, SSA pursued opportunities to begin the process of integrating the CBRN COI with other COIs. SSA was most active with the

"This Charter establishes the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) Software Support Activity (SSA) as a JPEO-CBD support organization.... It is managed under the Joint Project Manager for Information Systems (JPM IS)..."

Charter for the
Joint Program Executive Office (JPEO)
for Chemical and Biological Defense (CBD)
Software Support Activity (SSA)

CAPT Thomas O'Keefe
Joint Project Manager
Information Systems

◖ Programs ◗

JWARN
Joint Warning and Reporting Network

JEM
Joint Effects Model

JOEF
Joint Operational Effects Federation

Medical COI in 2005. SSA Teams were involved in numerous technical exchange discussions, meetings, and reviews. Importantly, SSA was able to demonstrate what an integrated CBRNó Medical capability might look like at the Chemical Biological Information System (CBIS) 2005 conference, and was able to demonstrate CBRNó Medical Use Cases to Ms. Ellen Embrey (Deputy Assistant Secretary of Defense (DASD) for Force Health Protection and Readiness (FHP&R)) and Admiral Hufstader (US PACOM Surgeon General).

As an element of the JPM IS, SSA was active during 2005 with the programs under JPM IS (JEM, JOEF, and JWARN).

JPEO-CBD Joint Project Managers

Biological Defense

Chemical Biological Medical Systems

Collective Protection

Contamination Avoidance

Decontamination

Guardian

Individual Protective Equipment

Information Systems

2005

2005 ~ Architecture Team Accomplishments

Develop, validate, and implement a technical C4I architecture as required in support of the operational requirement developed by the JRO Department of Defense Architecture Framework (DoDAF) compliant Integrated Architecture.
[SSA Charter, paragraph 5.3.1]

Maintain and shape the Integrated Architecture to address new technology, changing assumptions, and emerging requirements, including transition and mapping to the GIG 2.0 and the NCOW RM …
[SSA Charter, paragraph 5.3.2]

Collaborate throughout the JPEO-CBD community to establish and maintain an archive of supporting integrated architecture products required to assess information exchange and use …
[SSA Charter, paragraph 5.2.3]

The SSA Architecture Team was active in 2005 fulfilling its Chartered responsibilities. The following highlights significant activities and accomplishments.

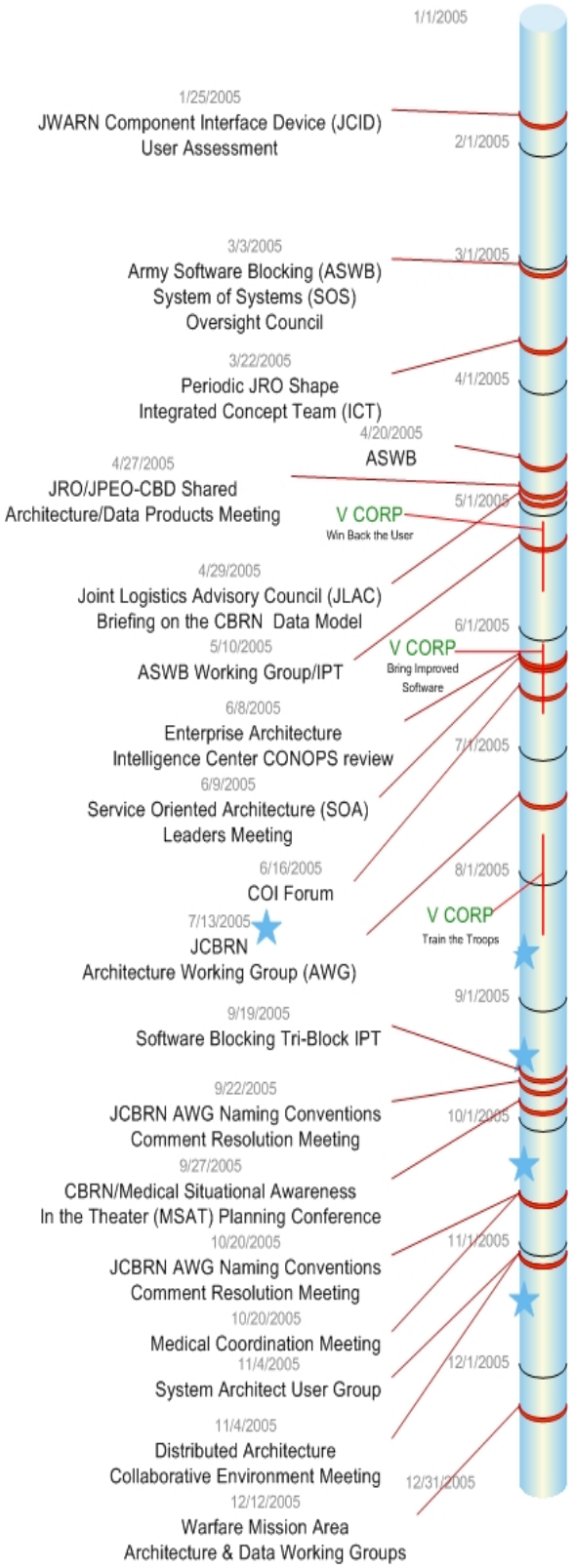
External to JPEO-CBD and/or Spanning the Chemical and Biological Defense Program (CBDP)

V CORPS Support

Approximately a full quarter of the SSA Architecture Team's time and resources in 2005 were dedicated to supporting V CORPS, acting as Technical Lead for getting V CORPS transitioned from Nuclear, Biological, Chemical Reporting Plotting and Modeling (NBC-RPM) to Joint Warning and Reporting Network (JWARN) 1D. The SSA Architecture Team served as the key programmatic and technical lead on the initial three V CORPS trips, which set the stage for modifications and enhancements to JWARN 1D which ultimately resulted in the equipping of V CORPS with JWARN 1E.

We provided full spectrum support including extended support directly to the Warfighter at Campbell Barracks in Heidelberg and Grafenwohr, Germany. Support was very dynamic, requiring extensive knowledge and short-response time requirements. It included:

- Hands-on technical support
- Training material review
- Information Assurance (IA) coordination with V CORPS G-6



- Reach-back coordination between Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) and Defense Threat Reduction Agency (DTRA)
- Bruhn-Newtech Statement of Work (SOW) development,
- Coordination across several division and brigade level organizations
- Review of training and Help Desk products and capabilities
- Exercise support at Victory Dragon II, Urgent Victory, and Unified Endeavor

The organizational benefit was clearly the creation of credibility for Joint Program Manager, Information Systems (JPM IS), for the first time since inception, to field, support, extend, and train a Chemical, Biological, Radiological, and Nuclear (CBRN) Information Systems product going directly into theater. This experience extended and developed expertise in top-to-bottom rapid product update, testing, certification, fielding and in-the-field training and set the stage for the rollout of new JPM IS products.

Finally, the SSA Architecture Team performed an extensive detailed comparative analysis of Chemical Companion, Chemical Biological Response Aide (CoBRA), Palmtop Emergency Action for Chemicals – Weapons of Mass Destruction (PEAC-WMD), and HAZMASTER G-3 for the SSA Director and provided it to JPM IS for procurement and equipping Warfighters. The recommendations were brought forward and approved which resulted in equipment being ordered and provided to V CORPS.

JRO-CBRND and JPEO-CBD Shared Architecture and Data Memorandum of Understanding (MOU)

The SSA Architecture Team was the primary author and driving force behind the Joint Requirements Office for Chemical, Biological, Radiological, and Nuclear Defense (JRO-CBRND) / JPEO-CBD Architecture / Data Product Stewardship MOU, signed by Maj. Gen. Bromberg and Brig. Gen. Reeves. This MOU establishes stewardship of all CBRND architecture products, establishes authoritative release sites and parties responsible for releasing all CBRND architecture products, and establishes tools and exchange formats to be used.

The MOU requires development of shared change request, configuration management, and release process and establishment of a common JPEO-CBD Department of Defense Architecture Framework (DoDAF) and Data product repository. Also, the MOU was the basis for the formation of a Joint CBRND (JCBRND) Architecture Working Group (AWG) to address issues and concerns that span more than one program, JPM, or JRO "S" area (SENSE, SHIELD, SHAPE, SUSTAIN), and work on common solutions that can / should be leveraged across the Enterprise. The JCBRND AWG meets monthly and is the first information systems focused technical forum across the Chemical Biological Defense Program (CBDP) Enterprise. These working groups have been instrumental in driving forward collaboration between the JRO, JPM IS, and SSA architecture teams on a host of issues and ideas that would have never otherwise come to light.

CBRN Community of Interest (COI) to Medical COI

The SSA recognized the multi-program requirements and interest in how CBRN and Medical need to share information and intelligence. Several programs across the JPEO-CBD have unrefined requirements and have expressed interest (JWARN, Joint Operational Effects Federation (JOEF), JPM Biological Defense (BD), and JPM Chemical and Biological Medical Systems (CBMS)). In addition, SSA has overarching direction for COI-to-COI Coordination to facilitate the creation of mission threads across the Warfighter Mission Area (WMA).

The SSA Architecture Team was a key contributing author in the CBRN-to-Medical Information Sharing pilot white paper. This paper outlines an approach for CBRN-to-Medical COI information sharing based on a set of Enterprise services that utilize common data models and schemas from each of the communities in order to facilitate interoperability. The paper outlines the Medical Situational Awareness in the Theater (MSAT) Advanced Concept Technology Demonstration (ACTD) as a venue for technology experimentation with transition points to multiple JPEO-CBD and Health Affairs (HA) programs of record.

The highlight of those activities to date was a successful demonstration of six CBRN-Medical Use Cases to Ms. Ellen Embrey (Deputy Assistant Secretary of Defense (DASD) (Force Health Protection and Readiness (FHP&R))) and ADM Hufstader (US Pacific Command (PACOM) Surgeon General) involving Medical Surveillance and Logistics.

During this time, the SSA Architecture Team supported numerous technical exchange discussions, meet-

ings, and reviews, including, but not limited to:

- DTRA Chemical Biological X (CBX)
- STARNet
- Executive Information/Decision Support (EI/DS)
- United States Marine Corps (USMC) Health Services Support (HSS)
- Health Affairs (HA)/TRICARE Management Activity (TMA) COI

Army Warfighter Mission Area (WMA) Integrated Working Team (IWT)

The SSA Architecture Team represented the JPEO-CBD at the WMA IWT. We participated in Architecture and Data working group meetings and briefed out the JPEO-CBD programs both formally and informally and educated Army PEO attendees on the fact that there is a Joint CBRND architecture which needs to be mapped to and/or integrated and coordinated with the Army's LandWarNet and Army Battlefield Command Systems (ABCS). This involved preparation and reviews of material for the meeting as well as having an active knowledge of CBRN information systems programs within the context of the greater Army architecture.

DoD Net-Centric and Architecture Initiatives

The SSA Architecture Team has actively engaged and participated in forums, conferences (in some cases presenting and being published), and key technical interchange meetings and key Joint Capabilities Integration and Development System (JCIDS) document reviews in the following areas:

- Global Information Grid (GIG) Architecture
- GIG Enterprise Services Conference
- Net-Centric Operations and Warfare Reference Model (NCOW RM)
- Joint Command and Control (JC2)
- Net-Centric Enterprise Services (NCES)
- Net-Centric Interoperability and Integration
- JRO-CBRND SHAPE Integrated Concept Teams (ICTs)
- Defense Architectures Conference
- Emerging Technologies Summit
- Blue Force Tracking Lessons Learned of Implementing DoD Data Strategy in a Service Oriented Architecture, noting that he the SSA Architecture Team subsequently met with Blue Force Tracking (BFT) technical lead to evaluate the potential reuse of their net-centric discovery infrastructure by JPM IS programs
- First World Wide Consortium for the Grid Conference
- DoD COI Forums

2005 Science and Technology (S&T) for Chemical and Biological Information Systems (CBIS) Conference

The SSA Architecture Team developed a presentation and white paper which it presented at the 2005 S&T CBIS Conference in Albuquerque, NM. The presentation and paper are titled, "Net-Ready CBRN Sensors – The Way Ahead…". The paper was very well received and particular interest was expressed by Joint Forces Command (JFCOM) to reuse content and concepts.

Army G-6/G-8 COI Data Strategy and Architecture Support

The SSA Architecture Team represented JPEO-CBD in Army G-6/G-8 COI Concerns Meetings. They shared concerns that JPEO-CBD SSA briefed at prior COI forums related to cross-COI coordination. This is in direct support of Army G-6/G-8 COI Data Strategy and Architecture.

DTRA Integrated Weapons of Mass Destruction Toolset (IWMDT) and JPM IS teams Support

The SSA Architecture Team supported both the DTRA IWMDT and JPM IS teams. They worked with the IWMDT technical point of contact to produce a recommended way-ahead for integration of JWARN and Joint Effects Model (JEM) into the IWMDT in place of NBC-RPM and Hazard Prediction and Assessment Capability (HPAC) respectively and additionally provided them with analysis and recommendations for leadership.

Presenter and Contributor for the v1.1 and v1.2 CBRN Data Model Working Groups

The SSA Architecture Team supported the v1.1 and v1.2 CBRN Data Model Working Groups and reviews as a key presenter and contributor.

Key JPEO-CBD Taskers Supported

Joint Quarterly Readiness Review for V CORPS
The SSA Architecture Team provided status, issues and input to JWARN 1E Program Management Officer (PMO). Additionally, the team provided extensive content and documentation (presentation slides, trip reports, recommendations and technical analysis) based on its direct key role in supporting V CORPS.

Net-Centric Enterprise Solutions for Interoperability (NESI) - JPEO-081205-5397 - NESI Terms of Reference (TOR).
The SSA Architecture Team provided an analysis and review of the NESI.

Host Platform Installation and Integration (I&I) Policy Assessment - JPEO-081005-5362
The SSA Architecture Team provided an analysis and review of this policy assessment.

ASA (ALT) FY06 Strategic Software Improvement Master Plan (SSIMP) Review
The SSA Architecture Team provided an analysis and review of the SSIMP and coordinated input with the SSA Standards and Policy (S&P) team.

Future Combat Systems (FCS) Information Support Plan (ISP) Technical Review
The SSA Architecture Team provided an analysis and review of the FCS ISP.

Internal to JPEO-CBD, but Spanning more than One Program of Record

JWARN Interface Requirements Specification (IRS)
The SSA Architecture Team produced an updated JWARN IRS and distributed for review to key reviewers including JPMs Contamination Avoidance (CA), Biological Defense (BD), Information Systems (IS), and Guardian, and the key participating contractors, Northrop Grumman (NG) and RTI. The Team is still in the process of comment adjudication.

JWARN Component Interface Device (JCID)-on-a-Chip
The SSA Architecture Team was a key contributing author in the "JCID-on-a-Chip" technical white paper. This paper outlined the creation of a common CBRN information technology platform that would abstract out the key components of what it means to connect to the GIG. In particular, allowing sensor developers to focus their resources on better sensing while leaving the net-centric components of information assurance, data strategy utilizing the CBRN Data Model, and providing services in service oriented architecture to the common platform. The SSA Architecture Team continues to provide technical consultation and strategy to the Holster / JCID-on-a-Chip team. This core component can be reusable across multiple JPEO-CBD product lines (including sensors and information systems) if guidance and strategy is implemented.

DoDAF Enterprise Architecture Repository
Working with the Joint CBRN Configuration Management team, the SSA Architecture Team supported the definition and creation of the DoDAF Enterprise Architecture repository on the JPEO-CBD Integrated Digital Environment (IDE) website, which has been populated with JPM IS and JRO SHAPE architecture products.

This repository is intended to serve not only as a repository for architecture and data products, but also as common reusable repository for information technology specifications and common software going forward.

FY2005 SSA Roadshow Support
The SSA Architecture Team supported all key areas of development of SSA Roadshows and information

material used in JPEO-CBD JPM Roadshows in order to educate the greater community of the architectural requirements they have as well as how SSA can support them.

The SSA Architecture Team participated in every SSA Roadshow performed in 2005.

JPM / Program-Specific Support

JPM Guardian

The SSA Architecture Team performed an extensive review of the JPM Guardian Requirements Determination Analysis (RDA) Plan and provided recommendations and input to JPM Guardian.

JRO-CBRND SUSTAIN and JPM Decontamination DoDAF Architecture

The SSA Architecture Team performed a formal review of the JRO-CBRND SUSTAIN and JPM Decontamination DoDAF Architecture and provided comments and recommendations.

JEM and JWARN In Progress Review (IPR) Support

The SSA Architecture Team supported JEM and JWARN IPRs as a technical representative and supported follow-on additional technical issue resolution meetings and tasks.

2005

2005 ~ Data Management Team Accomplishments

Support the creation and maintenance of a Data Model and Data Warehouse to service all JPM IT product requirements.
[SSA Charter, paragraph 5.4.2]

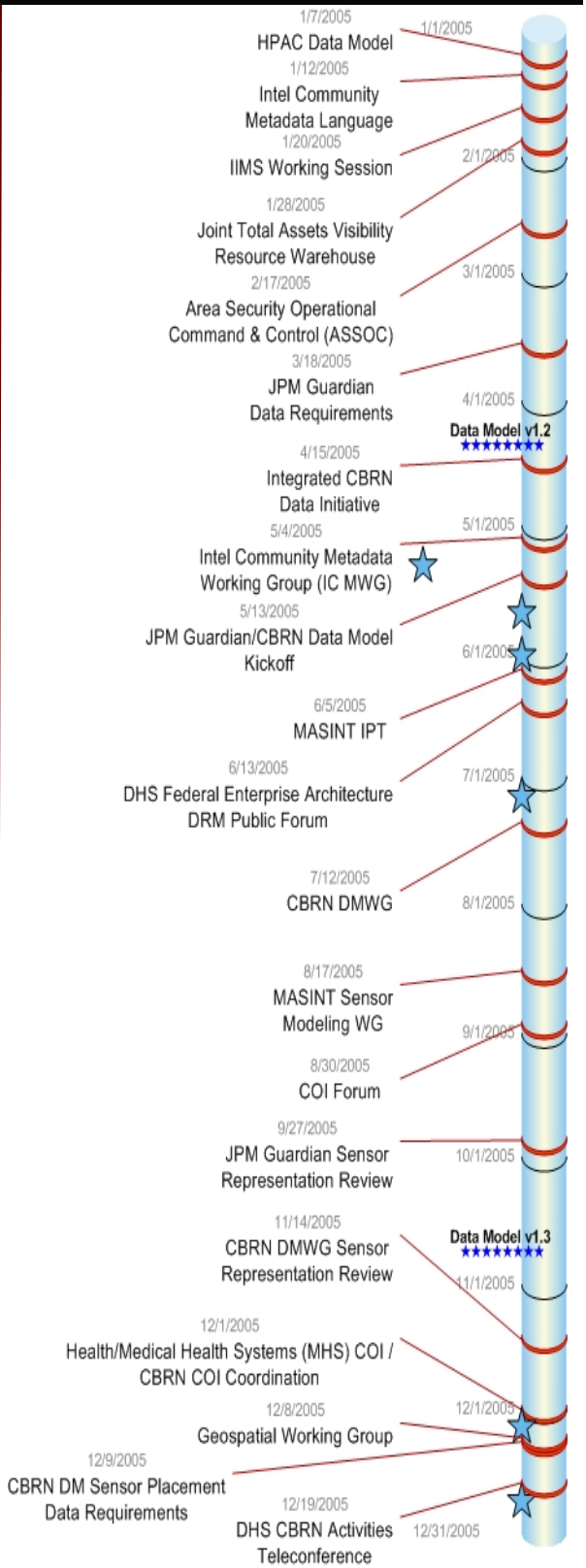
The SSA Data Management Team, working in conjunction with the Data Initiative and the Joint Project Manager, Information Systems (JPM IS) Data Acquisition Program Manager (APM), continued to support the development of the Chemical, Biological, Radiological, andNuclear (CBRN) Data Model. These support activities were on going throughout 2005. As a result of this support, the CBRN Data Model Version 1.2 was delivered in April 2005 and Version 1.3 in October 2005.

CBRN Data Model v1.2
The Data Management Team hosted a v1.2 Data Model Working Group (DMWG) Technical Review in July, with representatives from throughout the JPEO-CBD and JRO. The DMWG reviewed the enhancements in v1.2 and discussed planned changes that were targeted for v1.3. The enhancements in v1.2 included:

- CBRN extensions incorporated into the Joint Consultation, Command & Control Information Exchange Data Model (JC3IEDM)
- Support for Radiation Exposure Standardization Agreements (STANAGs)
- Extensive Remodeling of Agent Material Properties
- Remodeling of Observer Reports
- Separation of Detection from Measurement
- HPAC Parameters
- CBRN Gear/Equipment
- Physical Database Created from a Physical Data Model
- XML Schema Generated using Command and Control Information Exchange Data Model (C2IEDM) Schema Generation Software

CBRN Data Model v1.3
Enhancements in v1.3 included:

- Transport & Dispersion Variables
- Chemical and Biological Sensor Representation
- Mission Oriented Protective Posture (MOPP)
- Closer Integration with JC3IEDM
- Row-level Discovery Metadata Implementation
- Support for Population Representation
- Collective Protection Representation
- Improved Data Definitions



A DMWG Technical Review of v1.3 is scheduled for January 2006.

The Data Management Team produced the Extensible Markup Language (XML) Schema of version 1.3 using the software beta release of the Multilateral Interoperability Programme (MIP) Relational Database Management System (RDBMS) Extensible Markup Language (XML) Schema Generator. They also worked with the MIP XML Schema Generator developers to improve the schema generation process.

CBRN Data Model Sensor Represenation
An additional Data Management Team initiative in 2005 was to further develop and refine sensor representation in the CBRN Data Model. They hosted a CBRN Data Model Sensor Technical Review in November to begin this process. Additionally, a CBRN Sensor Data Working Group was established to carry it on.

JPM IS CBRN Data Initiative
The Data Management Team continued support in 2005 of the JPM IS CBRN Data Initiative. They acted as the Data Initiative liaison with:

- JEM, JOEF and JWARN
- JPEO-CBD JPMs
- JPEO-CBD Joint Logistics Advisory Council (JLAC)
- Joint CBRN Architectural Working Group (JCBRN AWG)
- Joint Requirements Office (JRO)
- Measurement and Signals Intelligence (MASINT) Community of Interest (COI)

> ***Help to establish consistency of CBRN Data Schema, Data Model and Extensible Markup Language Data Exchange across JPEO-CBD.*** [SSA Charter, paragraph 5.4.3]

XML Schema
The Data Team also supported the Data Initiative by development of CBRN XML Schemas. These Schemas provide an XML format for data exchange within the CBRN community. They also supported CBRN Metadata that is key to developing CBRN Discovery Services that allow systems and users to locate data and web services.

Net-Centricity
The Data Management Team pursued efforts to ensure the CBRN Data Model will fully support net-centricity. They participated in numerous Discovery Metadata working groups, including:

- DoD Discovery Metadata Specification (DDMS)
- Intelligence Community Metadata Working Group (IC MWG)
- DHS Metadata Working Group
- Geospatial Working Group (GWG)

This is key to understanding how data and web services will be discovered within the Net-Centeric Enterprise Services (NCES).

COI Initiatives
Through 2005, the Data Management team was actively involved in pursuing and understanding data interface and exchange requirements from a variety of COIs and the COI Forum. The Data Management Team pursued a number of opportunities to interact with other communities of interest, establishing an initial relationship with:

- Department of Homeland Security (DHS) CBRN Science and Technology Community
- Health/MHS COI and Medical Information System Programs
- Meteorological and Oceanographic (METOC) COI
- Measurement and Signatures Intelligence (MASINT) COI

They also established key relationships with JPEO-CBD JPMs necessary to promote CBRN Data Model, Net-Centric Data Strategy, and Net-Centric Enterprise Services activities.

In support of SSA's broad-based interaction with the Medical COI, the Data Management Team met with Medical COI Namespace Manager to discuss data representation. They also drafted a paper defining a CBRN and Health/MHS COI Interoperability Working Group, which would focus on interoperability issues between the CBRN and Medical COIs.

To stimulate conversation and pursue process improvement, the Data Management Team developed and made a presentation to the COI Forum providing an overview on methods with which COIs can interact. Additionally, they developed and presented a methodology for utilizing the CBRN Data Model in a Service Oriented Architecture (SOA) at the Chemical Biological Information Systems (CBIS) Conference 2005.

The SSA and JPM IS Data Model Team
with the CBRN Data Model

Pictured (Left to Right): Sheila Vachher, William Snee (SSA Data Management Team Lead), Janice Pelon, David Snee (SSA Data Management Team), and Sushma Sondhi.

Not pictured: Dr. Thomas Johnson (JPM IS Data APM), Edward Brinko, and Patrick Goalwin.

2005

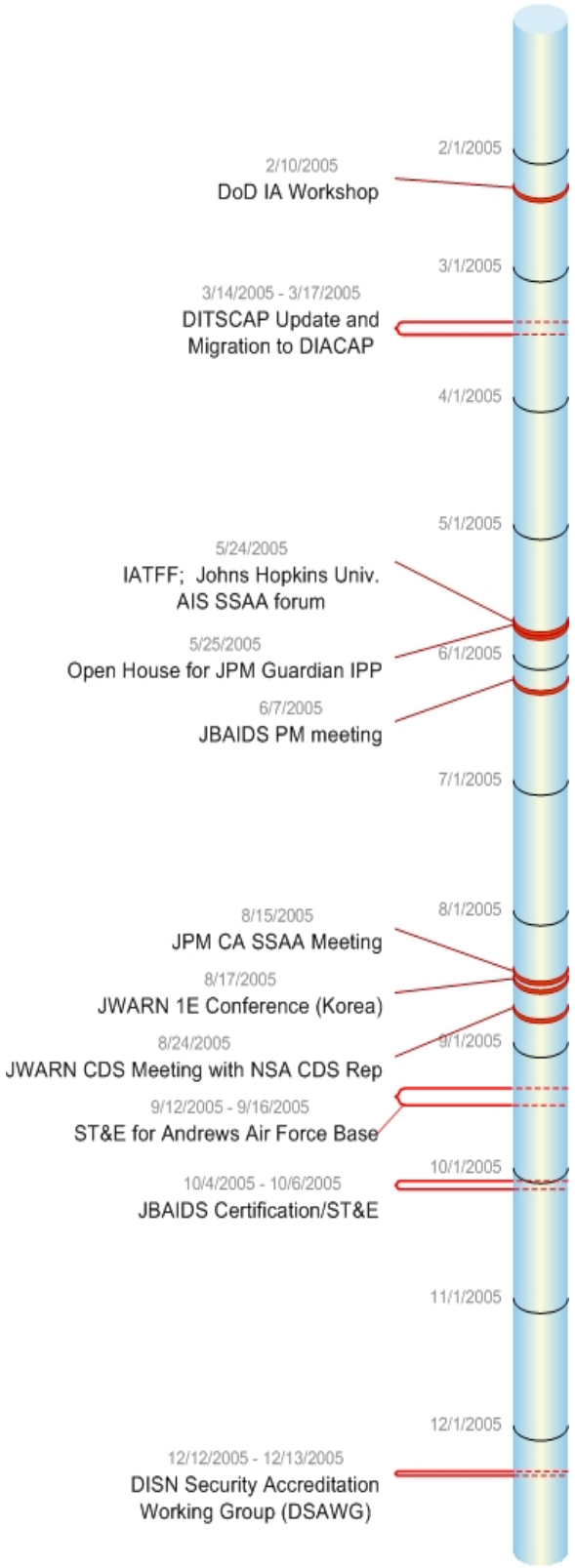
2005 ~ Information Assurance Team Accomplishments

Coordinate information assurance activities across JPMs to promote commonality of services in meeting security standards...
[SSA Charter, paragraph 5.2.4]

In conjunction with the JPM IS Security Team, the SSA Information Assurance (IA) Team was active in 2005 supporting Certification and Accreditation (C&A) of CBD programs. To standardize the process for providing this support, and in compliance with CMMI principles, the IA Team developed and got approved a SSA Certification and Accreditation (C&A) Standard Operating Procedure (SOP).

DITSCAP Documentation and Authority to Operate
In support of JPEO-CBD and its JPMs, the IA Team shepherded numerous programs through various facets and phases of the DoD Information Technology Security Certification and Accreditation Process (DITSCAP) and compliance with the requirements of the Clinger-Cohen Act (CCA). This included development of IA Strategy documents, Security Classification Guides (SCGs), Program Protection Plan (PPP), and System Security Authorization Agreements (SSAAs). Programs supported included:

- JPM IS
  - Joint Warning and Reporting Network (JWARN) Increment I (DITSCAP Phase 1 System Security Authorization Agreement (SSAA) submitted)
  - JWARN Block IE (Interim Authority To Operate (IATO) submitted and received Program Manager approval)
  - JWARN Initial Capability (JIC) (SSAA approved; Authority To Operate (ATO) approved)
  - Joint Effects Model (JEM) Block I Build 2 (SSAA approved; awaiting Designated Approval Authority (DAA) approval for ATO)
  - Joint Operational Effects Federation (JOEF) Increment I SSAA (DITSCAP Phase 1 SSAA approved)
  - SignalFire (SSAA and Cross Domain Solution (CDS) ticket request in progress)
- JPM Contamination Avoidance (CA)
  - Multipurpose Integrated Chemical Agent Detector (MICAD) (reviewed and commented on JPM Contamination Avoidance (CA)-developed SSAA)
- JPM Chemical Biological Medical Systems (CBMS) –
  - Joint Biological Agent Identification and Diagnostic System (JBAIDS) (completed SSAA)
- JPM Guardian
  - Installation Protection Program Command, Control, Computers, Communications, and Intelligence (IPP C4I) (IATO approved – Air Force only) (revising IATO; updating the SSAA to include IPP C4I Lite)



- Integrated Commercial Intrusion Detection System (ICIDS) (SSAA development in progress)
- JPEO-CBD
  - Integrated Digital Environment (IDE) (SSAA development in progress)

Of note, the IA Team was successful in July 2005 in getting a Proof-of-Concept Interim Authority to Operate (IATO) for the JWARN 1E program, to enable it to participate in the Army V Corp exercises in Germany.

CT&E Testing
The IA Team also performed Certification Test and Evaluation (CT&E) and other related testing for various programs, including:

- IPP C4I (Andrews AFB)
- JBAIDS
- JWARN 1D and 1E
- JEM
- Command and Control Personal Computer (C2PC)
- Nuclear, Chemical, and Biological - Analysis (NBC-A)

The SSA team was also successful in acquiring approval from the Defense Information Systems Network (DISN) Security and Accreditation Working Group (DSAWG) that JWARN Increment I is not considered a Cross Domain Solution.

The SSA and JPM IS Information Assurance Team

Pictured (Right to left): Guy Casciola (Team Lead), John Howard, Blake Lomprey, Catrina Brott, Colin Fera.

Not pictured: Pat Guerin, Cale Dansbee, Chris Beckham.

2005

2005 ~ Integration & Test Team Accomplishments

Provide consistent processes and guidelines to JPEO-CBD programs for conducting program and model accreditation, data certification, and Independent Verification and Validation (IV&V). [SSA Charter, paragraph 5.5.3]

The SSA Integration and Test (I&T) Team is a subgroup under the umbrella of JPEO-CBD SSA to support technical needs of integration and test focused on enterprise capabilities spanning all aspects of JPEO-CBD programs. Enterprise capabilities are those capabilities that provide common technical and functional processes that can be leveraged by all JPEO-CBD programs, initiatives, and efforts; thus reducing duplication and cost through standardization and reuse. The following are I&T Team accomplishments for calendar year 2005:

Office of Secretary of Defense (OSD) Chemical Biological Radiation Nuclear (CBRN) Survivability Policy development

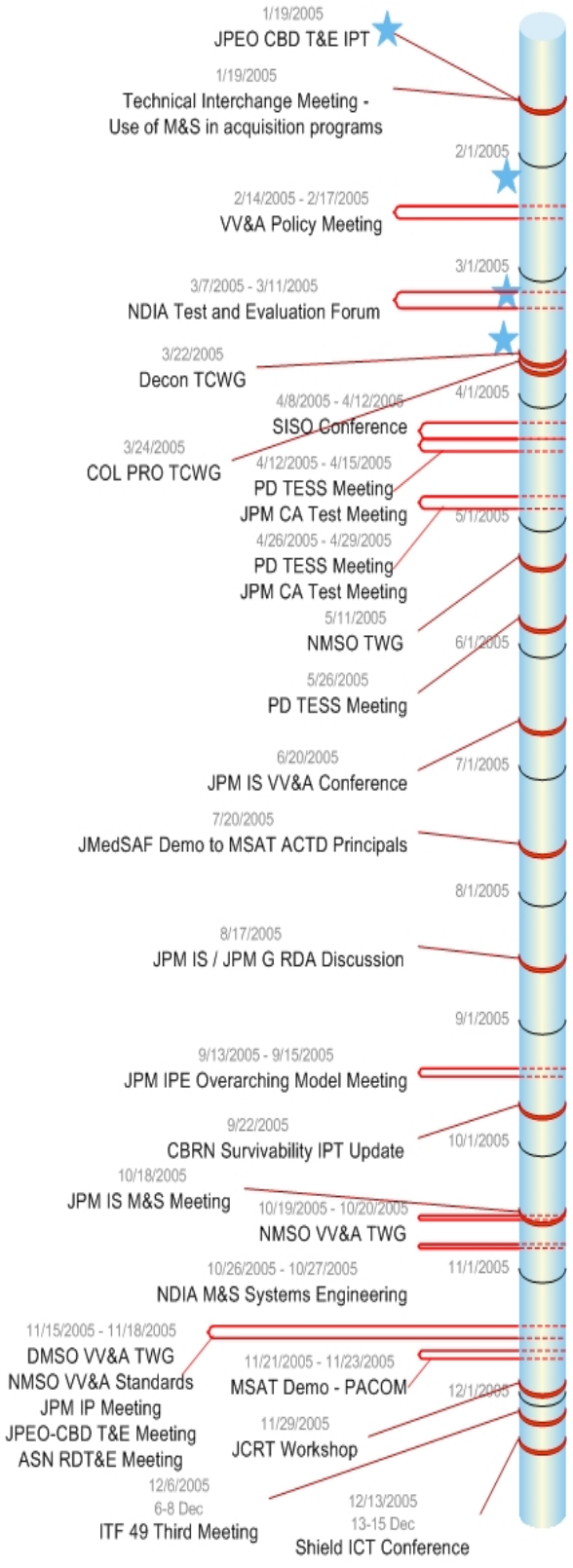
The GAO report of 2004 has identified numerous flaws in OSD CBRN Survivability Policy. Mainly, it does not support current operational doctrine and war fighting needs of our soldiers/sailors/airmen. In order to correct the situation, a working group consisting of experts from various groups and organization were brought together to provide recommendations and solutions for policy updates. SSA I&T participated in the working group to provide subject matter expertise on the use of modeling and simulation (M&S) in a CBRN environment as a possible predictive and analytical tool, which would enhance the warfighter's awareness of CBRN actions.

JPEO-CBD M&S VV&A Guidelines

The JPEO-CBD M&S Verification, Validation and Accreditation (VV&A) Guidelines was developed to establish procedures for the VV&A of models and simulations, and the verification, validation, and certification of data throughout JPEO-CBD. It also established the responsibilities and procedures for JPEO-CBD class accreditation of CBRN M&S and certification of data.

SSA I&T, with the assistance of the Standards and Policy Team, developed the M&S VV&A Guidelines and distributed then to all of the JPEO-CBD JPMs for comment and subsequent resolution. The initial version of the Guidelines was signed and distributed on 2 May 2005.

The Guidelines have been presented to the International Task Force 49 (ITF 49) in July of 2005. Canadian and United Kingdom recommendations and additions will be incorporated into an upcoming revision, which is then expected to be adopted as the Canada, United Kingdom, and United States (CANUKUS) CBRN Standard for M&S



VV&A.

M&S Center of Excellence

This effort is at the direction of JPEO-CBD to provide an enterprise-wide resource for Modeling and Simulation development and use. The concept calls for two support areas, Business processes and Warfighter support, in which M&S can be used to provide training and operational analysis for the warfighter; and at the same time be used to in the acquisition process such as test and evaluation (T&E) and cost/benefit trade analyses. The initial white paper was coordinated and submitted to JPEO-CBD. Currently, we are waiting on a response to proceed with an Implementation Plan for the concept.

JPEO-CBD Chief of T&E

SSA I&T presented its capabilities and functionalities to JPEO-CBD Chief of T&E to familiarize and understand the roles of JPEO-CBD SSA. We are currently preparing for a Joint effort between the JPEO-CBD Chief T&E and SSA I&T to conduct a series of presentations on JPEO-CBD T&E resources and assets to each of the JPMs and to the Operational Test Authorities (OTAs).

International Task Force 49 (ITF 49)

The Governments of Canada, the United Kingdom, and the United States have entered into a Joint Memorandum of Understanding (MOU) in order to "improve their mutual CBR defense capabilities through greater cooperation in research, development and acquisition of chemical, biological, and radiological defense materiel." To implement this MOU, a series of International Task Forces were established. ITF 49 is Battlespace and Information Systems Development.

In the Summer of 2005 the newly published M&S VV&A Guidelines were presented to ITF 49 and recommended for adoption as a common standard. At the December 2005 meeting of the group the UK presented a set of comments and recommendations to the Guidelines. These recommendations will be incorporated in the Guidelines by the I&T Team and an updated version will be published and presented to ITF 49 at a future meeting.

Community of Interest (COI) Support

SSA I&T pursued opportunities to advance the process of integrating the CBRN COI with other COIs throughout the year. The most active effort in 2005 was with the Medical COI. SSA Teams, including I&T, were involved in numerous technical exchange discussions, meetings, and reviews. Importantly, SSA was able to demonstrate what an integrated CBRN to Medical capability might look like at the Chemical Biological Information System (CBIS) 2005 conference, and was able to demonstrate CBRN to Medical Use Cases to Ms. Ellen Embrey (Deputy Assistant Secretary of Defense (DASD) for Force Health Protection and Readiness (FHP&R)) and Admiral Hufstader (US Pacific Command (PACOM) Surgeon General).

JPM Contamination Avoidance (CA) M&S VV&A Support

Through SSA Road Show presentation and meetings in August of 2005, I&T was called upon to meet with key individuals of JPM CA to discuss VV&A requirements for Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD). There was an issue between the OTA and the program office in which M&S was being used in support of Operational Test and Evaluation (OT&E). SSA I&T reviewed the accreditation plan and provided recommendations as well as examples of how other programs/projects have written accreditation plans to support OTA requirements. Additionally, this issue was documented within the JPM IS issues process, as this is recurring within the Department of Defense (DoD).

JPM IS M&S VV&A and T&E Support

SSA I&T provided extensive review, comment and recommendation to the Joint Warning and Reporting Network (JWARN), Joint Effects Model (JEM), and Joint Operational Effects Federation (JOEF) programs in application of M&S VV&A during the past year. Through this review, JEM Block 1 was approved for interim accreditation by JPEO-CBD. SSA I&T is continuously in dialogue with JPM IS Acquisition Program Managers (APMs) to ensure their M&S products have been verified, validated, and accredited.

Members of the I&T Team assisted JWARN in the selection of test sites for Developmental Test (DT)-2.

The Team made multiple site visits to evaluate technological and personnel capabilities. The I&T Team was further tasked to evaluate proposals for sensor emulators which would be necessary to round out the limited complement of actual Chemical and Biological (CB) sensors necessary for JWARN's DT2 efforts. This evaluation resulted in a source selection which saved approximately $400,000 for emulator development while maintaining an aggressive schedule.

As a result of this evaluation effort, the I&T Team was asked to provide a representative to oversee the emulator development as well as the field testing for JWARN DT 2.

JPM Individual Protective Equipment (IPE) M&S Support

Working closely with JPM IPE, SSA I&T is assisting to establish an M&S Strategy. The original vision of this effort was to develop an M&S Strategy for Joint Service Lightweight Integrated Suit Technology (JSLIST), Joint Protective Aircrew Ensemble (JPACE), and JSLIST Block 2 Glove Upgrade (JB2GU). Under this guidance, SSA I&T identified the requirements per the specified Operational Requirements Document (ORD), facilitated the identification of requirements that were applicable to M&S, recommended the conduct of industrial research to leverage existing M&S, and the inclusion of M&S in JPM IPE's acquisition strategy. Additionally, SSA I&T provided tutorials on M&S, M&S integration with the JCIDS process, and a detailed outline of a possible M&S Strategy.

JPM Guardian Support

The SSA I&T Team coordinated the JPM Guardian Research and Development Acquisition (RDA) Strategy review within JPM IS. Specifically, I&T provided in-depth comments in the areas of M&S and technology gaps.

2005

2005 ~ Standards & Policy Team Accomplishments

Promote and assist JPMs in compliance with acquisition policies, processes, standards and guidelines ...
[SSA Charter, paragraph 1.2.1]

The SSA shall provide the following services and coordination for IT products developed by the JPMs:
-Policies, Protocols, and Standards
[SSA Charter, paragraph 1.3.1]

The SSA Standards and Policy (S&P) Team was active during 2005 working with Joint and Service organizations and JPCO-CBD Joint Program Managers (JPMs) to assist in the development and implementation of Joint Chemical, Biological, Radiological, and Nuclear (CBRN) standards and policies.

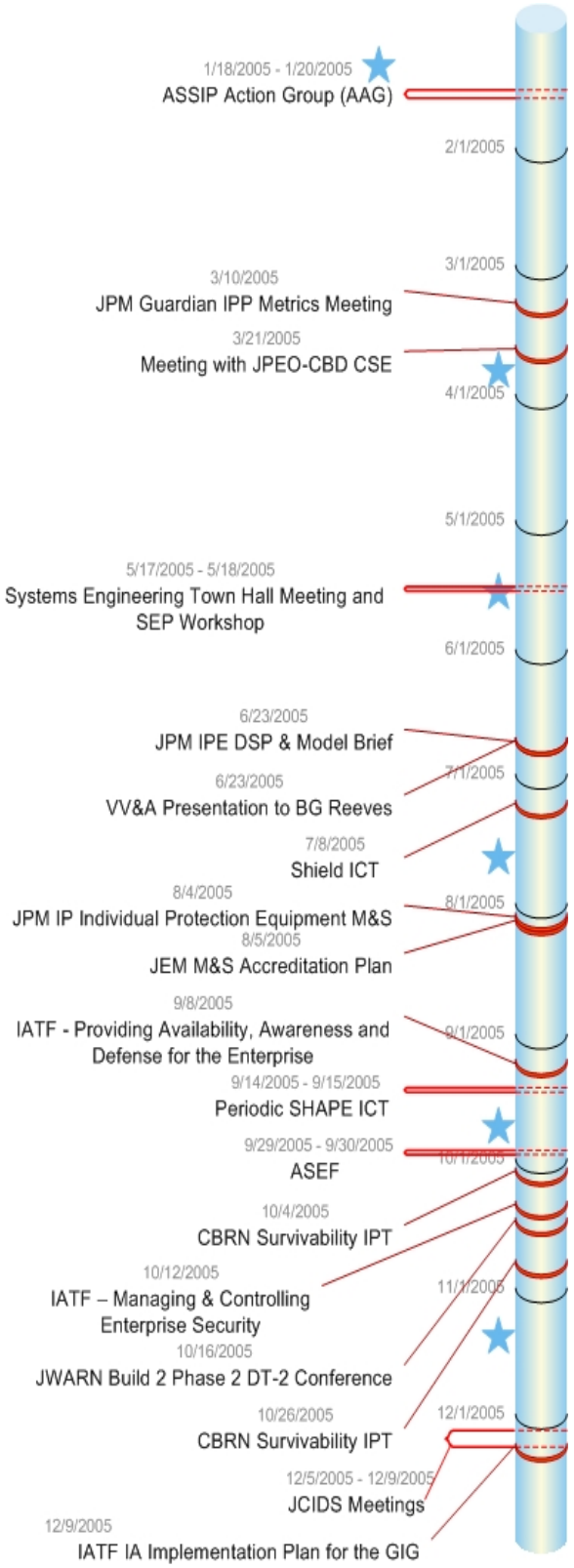
ASSIP Action Group (AAG)
The S&P Team provided recurring support to the Assistant Secretary of the Army for Acquisition Logistics and Technology (ASA (ALT)) Army Strategic Software Improvement Program (ASSIP) Action Group (AAG) and the Army Program Executive Office (PEO) Systems Engineering Forum (ASEF) on strategic software improvement program activities and systems engineering, respectively. This included:

- Representing JPEO-CBD in bi-monthly meetings
- Transferring knowledge to and from these organization
- Contributing to the Annual Strategic Software Improvement Plan
- Keeping a Joint orientation in Army-centric proceedings

Software Engineering Institute (SEI) Training
In the realm of training, the S&P Team coordinated with the JPEO-CBD Analyst to ensure training on acquisition of software intensive systems was announced to all JPMs and Directors. Also, the S&P Team was certified one SSA staff member as a Software Engineering Institute (SEI) Software Architect.

Army Survivability IPT
The S&P Team also provided support to Army CBRN Survivability Integrated Product Team (IPT). The Army Survivability IPT was directed by LTG Joseph Yakovac, Military Deputy to ASA(ALT), in response to media reaction in early July 2005, to a report by the Army Audit Agency (AAA), "Chemical, Biological and Nuclear Survivability Testing of Army Systems."

Information Support Plan (ISP) Support
The S&P Team collaborated with J6 and Assistant Secretary of De-



fense Networks and Information Integration (ASD(NII)) to reduce Information Support Plan (ISP) burden and clarify coordination requirements. They kept JPM IS Acquisition Program Managers (APMs) and ISP points of contact updated on emerging policy changes and impacts on their plans for submitting their ISPs. The S&P Team evaluated impacts of the new Office of the Secretary of Defense (OSD) Pilot ISP program and J6 Tailored ISP program and recommended a course of action for JPM IS ISPs. They attended individual meetings and strategy sessions with JPM IS ISP and System Engineering Plan (SEP) developers, the JPEO-CBD Analyst, and JPEO-CBD to provide support and leverage lessons learned. They also provided templates, guides, and checklists in support of JPEO-CBD tasking on the DoD ISP Pilot Program.

Miscellaneous Support
Additionally, the S&P Team:

- Assisted in the development of the JPEO-CBD Modeling and Simulation (M&S) Guidelines.
- Supported M&S initiatives of JPM Individual Protection (IP) by coordinating SSA M&S Subject Matter Experts (SMEs) and participating in strategy sessions and decision briefs.
- Provided policy interpretation to support JEM Certification.
- Captured JPEO-CBD Vision for creation of JPEO-CBD M&S Center of Excellence.
- Supported development of concept statement and product line approach to leverage M&S resources to improve the entire acquisition process.
- Provide research and analysis for command decisions on equipping troops with a portable Hazardous Material (HAZMAT) solution.

Establish a repository of standard processes, interfaces, guidelines, protocols, syntax, artifacts, data, metrics and templates for JPEO-CBD applications
[SSA Charter, paragraph 5.2.1]

S&P Repository
The S&P Team established the structure of and began populating the S&P Repository on the JPEO-CBD Integrated Digital Environment (IDE) website with policies, standards, guidelines, templates, frameworks, checklists, and Joint Capabilities Integration and Development System (JCIDS) material. At the end of 2005 there were more than 200 items in the repository.

2005

2005 ~ Science & Technology Team Accomplishments

Maintain and shape the Integrated Architecture to address new technology, changing assumptions, and emerging requirements...
[SSA Charter, paragraph 5.3.2]

The SSA will pursue "Jointness", net-centric warfare and work to promote functional focus areas and technology use...
[SSA Charter, paragraph 6.3]

Establishment of SSA Science and Technology (S&T) Functional Area

The Science and Technology (S&T) functional area was established in mid-October 2005 when LorRaine Duffy joined SSA as Science and Technology Transition Manager. Prior to the formal establishment of an S&T Transition Manager, the JPM IS SSA Lead articulated the science and technology process that was to drive the transition and insertion of 6.2 (applied research/proof of concept) and 6.3 (demonstration of concept) projects into the three JPM IS programs of record (PORs), Joint Warning and Reporting Network (JWARN), Joint Effects Model (JEM), and Joint Operational Effects Federation (JOEF).

Technology Transition Agreement (TTA)

The SSA S&T Transition Manager coordinated SSA efforts with the Joint Science and Technology Office's (JSTO) Technology Transition Agreement (TTA) process for current PORs. This entailed the writing of a Technology Development Strategy (TDS) and a Technology Evaluation Plan (TEP) for each of the PORs. This cascaded into the creation of 23 TTA's for all related 6.2 and 6.3 funded projects.

Interface with Academic Institutions

The SSA S&T Transition Manager reviewed several university research programs, most notably those within the California Institute for Telecommunications and Information Technology (developers of BIONET), to engage in the development of collaborative research efforts in service oriented architectures. She also started a discussion with University of California San Diego (UCSD) management regarding their nanotechnology program to see if any collaborative efforts can be grown with DTRA.

Interface with Medical Community of Interest (COI)

In conjunction with an SSA-wide effort with the Medical COI, the S&T Transition Manager began efforts to tie more directly with that community to develop facile methods for information sharing.

S&T for Chemical Biological Information Systems (CBIS) Conference

The S&T Transition Manager participated in the 2005 S&T CBIS Conference in late October. At the conference, an agreement between the Defense Threat Reduction Agency (DTRA) Capability Area Program Officer (CAPO) and SSA Transition Manager led to SSA S&T being designated to manage the 2006 S&T CBIS Conference.

2005

2005 ~ Help Desk Team Accomplishments

...the SSA will provide a 24 hour-a-day, seven day-a-week Level-One Help Desk capability for all JPEO-CBD systems to accept trouble calls and enter them into a formalized database where they can be tracked, and accessed by the appropriate agency for disposition.
[SSA Charter, paragraph 1.1]

The SSA shall establish a Help Desk to serve as an initial point of contact for JPEO-CBD users that have... CBRN IT system and NSS related inquiries... [SSA Charter, paragraph 1.4]

It shall establish a web site for the ... Help Desk and provide a "1-800" number to link the JPEO-CBD enterprise with related activities and provide timely consolidated and professional support for users.
[SSA Charter, paragraph 5.6.2]

Through its efforts in 2005, the SSA Help Desk Team was successful in bringing the initial capability of the Chemical and Biological Defense Information Technology (CBD IT) Help Desk online.

JPM IS Support
The SSA Help Desk Team headed the effort to establish a Memorandum of Agreement (MOA) between JPM IS and the Space and Naval Warfare (SPAWAR) Systems Center San Diego (SSC San Diego) Joint System Support Knowledge Center (JSSKC) for the development and manning of the CBD IT Help Desk. The MOA was signed on 3 October 2005. The CBD IT Help Desk opened on 15 October 2005, providing customer support for JPM IS programs (Joint Warning and Reporting Network (JWARN) and Joint Effects Model (JEM)).

V Corp Support
The CBD IT Help Desk capability was stood up well ahead of schedule to support operations of the U.S. Army V Corp, which included use of the JWARN and JEM products. Subsequently, and at JPM IS request, the Chemical Biological Response Aide (CoBRA) program was added to the CBD IT Help Desk, also in support of V Corp.

CBD IT Help Desk

Joint System Support Knowledge Center
SPAWAR Systems Center San Diego

Help Desk Capabilities
The CBD IT Help Desk's initial support for JPM IS programs will be expanded to span all JPEO-CBD programs of records. The Help Desk was set up with a basic set of products that will be able to be used by any JPM. JPMs that use the Help Desk have these tools available to them:

- 24/7 phone support (1-877-328-0371).
- SIPRNET capability.
- The Remedy database, which generates metrics than can be used to track Help Desk usage and potential trouble spots.
- The CBD IT Help Desk web site. The web site provides access to –
  - Frequently Asked Questions (FAQs)
  - Lessons Learned
  - User Manuals
  - Training Products
  - Downloads / Links
  - Self Service Account Management
  - Customer Service Requests (CSR) Query Capability
  - A searchable knowledge database

Level I and Level II Services
The CBD IT Help Desk was stood up as a Level I service (i.e. to take and log trouble calls and pass them to a program Help Desk for resolution). JPM IS elected to fund Level II services also. This will allow the CBD IT Help Desk to directly troubleshoot problems occurring with program software, its installation or configuration, and with system hardware. At Level II, the CBD IT Help will maintain multiple versions of a system to allow them to duplicate and resolve software and/or hardware configuration problems that might be faced by the war fighter.

When Level II services are needed, the CBD IT Help Desk can provide programs with that capability on a Fee-for-Service basis. The cost will be determined on a case-by-case basis, depending on the depth of support and complexity of the systems involved. Automated email notification of the each program's own Subject Matter Experts (SMEs) is part of the standard Remedy package. SMEs will be able to log into the JSSKC Remedy Database and address the CSR from anywhere via a web-based interface.

2005

2005 ~ Project Support Team Accomplishments

CM, QA, and Management Support

Configuration Management (CM) Team

> *A…"Joint Configuration Management and Release Plan" applicable to [JRO-CBRND and JPEO-CBD] will be developed…* [JRO-CBRND and JPEO-CBD Stewardship of CBRN Architecture Products MOU, paragraph 3.B.1)]

The CM Team had the lead, in support of the Architecture Team, in developing the Joint Chemical, Biological, Radiological, and Nuclear Defense (JCBRND) Configuration Management Plan (CMP). Working with the SSA Project Manager (PM) and Chief Systems Engineer, they produced the draft document, distributed it to reviewers within SSA, JPEO-CBD, and JRO-CBRND, and adjudicated the review comments received. At the close of 2005 the updated document was back with reviewers for re-review.

The CM Team also undertook to establish artifacts in support of the JCBRND Change Control Board (CCB), which will be instituted by the JCBRND CMP. They began development of a JCBRND Product Change Request (PCR) database, to be available through the JPEO-CBD Integrated Digital Environment (IDE) web site. They also created a collective email address for use by the JCBRND CMP COI, and for subsequent use in submitting PCRs and coordinating JCBRND CCB meetings.

> *Collaborate throughout the JPEO-CBD community to establish and maintain an archive of supporting integrated architecture products required to assess information exchange and use…* [SSA Charter, paragraph 5.2.3]

The SSA CM Team established an Enterprise Architecture Repository on the JPEO-CBD Integrated Digital Environment (IDE) website. This repository has been populated with DoD Architecture Framework (DoDAF) products for JPM IS Programs of Record and JRO SHAPE. This will also contain the DoDAF products comprising the Enterprise Architecture as they are produced.

Quality Assurance (QA) Team

> *The SSA will strive toward certification of Capability Maturity Model Integrated (CMMI) Level 3 environment with all associated processes, JPEO-CBD CJCS products, metrics, inspections and audits.* [SSA Charter, paragraph 6.4]

The QA Team provided services to all Teams in conducting QA reviews of documents. Artifacts resulting from Peer Review of SSA documents were archived on the JPEO-CBD IDE, in support of Capability Maturity Model Integration (CMMI) Level 2 QA processes.

The QA Team, in conjunction with the SSA Deputy PM, had the lead on preparations for a scheduled May 2006 Standard CMMI Assessment Method for Process Improvement (SCAMPI) B evaluation. They coordinated across all SSA Teams to:

- Produce or update documentation
- Plan, document, and implement standard processes
- Identify and collect artifacts required for the SCAMPI
- Plan training

Additionally, they coordinated closely with the JPM IS Process Improvement Lead to coordinate and align the many documentation and process overlaps between the two organizations.

Management Support

SSA Management Support personnel performed many important tasks in 2005 in support of the functioning of the SSA. These tasks included:

- Conducting SSA weekly meetings to address status, concerns and issues among the Team members
- Supporting weekly Integration Oversight Group (IOG) and Program Management Direction Team (PMDT) meetings to address issues across multiple JPM IS programs
- Supporting weekly and monthly reporting requirements and various briefings.
- Working to provide at least one article in every Chem-Bio Defense Quarterly magazine to help introduce the SSA and its services/capabilities to the CBRN community
- Supporting conferences with presentation and demonstration materials
- Supporting development of training plans and promoting training events
- Establishing a draft Program Management Plan (PMP) to govern the activities of the SSA
- Establishing Standard Operating Procedures (SOPs) and Desktop Procedures to provide consistently applied processes across the project
- Establishing a Work Breakdown Structure (WBS) and processes for adding new tasks to begin to establish a baseline schedule
- Administrative support to numerous internal and external meetings
- Support of the SSA portion of the JPEO-CBD Integrated Digital Environment (IDE) website, including organizing its design and populating the content
- Maintenance and reporting of the SSA Task Management System, including coordinating it with the JPM IS action item/issue system
- Support to SSA CM, QA, and CMMI activities

JPEO-CBD
Software Support Activity
Annual Report
2005

2006 ~ The Way Forward

External to JPEO-CBD and/or Spanning the Chemical and Biological Defense Program (CBDP)

JPEO-CBD and JPM IS Taskers

The SSA Architecture Team will continue to support dynamic Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) Taskers as they arise. The SSA Architecture Team will continue to support extensive dynamic tasking from Joint Program Manager, Information Systems (JPM IS) and SSA leadership.

DoD and Service-Specific Architecture and Information Technology Representation for JPEO-CBD

The SSA Architecture Team will begin taking an active role of representation and participation in each of the Architecture/Technical meetings for each of the Service's and Department of Defense's (DoD's) key Architecture efforts. We need to ensure that JPEO-CBD Information Technology (IT) efforts are represented correctly and integrated into the overarching Architectures of each of the Services and aligned with the Joint Chemical, Biological, Radiological, and Nuclear Defense (JCBRND) Architecture. In particular, our focus areas will be:

- DoD – Office of the Secretary of Defense for Networks and Information Integration (OSD (NII)) and Defense Information Systems Agency (DISA)
- Army -
  - Warfighter Mission Area (WMA) Integrated Working Group (LandWarNet) and Army Battle Command System (ABCS)
  - Future Combat Systems (FCS) and Alignment with CBRN
  - Software Blocking
- Navy - FORCENet
- Air Force – Command and Control (C2) Constellation
- Marine – Marine Air Ground Task Force (MAGTF)

Engage with and Track Key Net-Centric C2/ C4ISR and Net-Centric Infrastructure Programs and Initiatives

The SSA Architecture Team will establish direct contact and liaison with the following key DoD net-centric and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) transformational programs and initiatives:

- Net-Centric Enterprise Services (NCES)
- Joint Command and Control (JC2)
- Joint Tactical Common Operational Picture (COP) Workstation (JTCW)
- Global Command and Control System Joint (GCCS-J)
- Net-Centric Operations Warfare (NCOW) Reference Model (RM)

The purpose will be to periodically track and evaluate the status and maturity of their evolving technical solutions in order to understand the near and long term alignment required of CBRN IT strategy. In addition, represent the overarching IT requirements of CBRN in the capabilities that are being defined and implemented in those programs.

Finally, we will track updates of the NCOW RM and assess and provide recommendations on our migration strategy accordingly, but always checked against the reality of the Programs of Record (e.g. JC2, NCES) that are supposed to provide the infrastructure that we utilize.

Participate in Key International, NATO, Coalition, and Joint Multinational Architecture and Information Technology Events

Data is an integral part of the integrated architecture, and it is critical that we have the same level of representation and consistency in the North Atlantic Treaty Organization (NATO), Coalition and Joint Multinational communities.

In 2006, the SSA architecture Team will identify key architecture venues at this level. SSA will attempt, based on priorities of other tasking and funding, to attend, present, educate, learn, and represent the best interests of JPEO-CBD Information Technology.

From an Enterprise perspective and strategy it is critical that we are in alignment with and help shape the concepts and components as it relates to these international exercises, programs, and/or initiatives deemed to be of strategic importance by JPM IS and JPEO-CBD leadership.

Continue to Implement the JRO-CBRND and JPEO-CBD Shared Architecture and Data Memorandum of Understanding (MOU)

The SSA Architecture Team will continue working on the implementation of the JRO Chemical, Biological, Radiological, and Nuclear Defense (CBRND) and JPEO-CBD Stewardship of Shared Architecture/Data Products MOU across the Chemical Biological Defense Program (CBDP).

Co-Chair JCBRND Architecture Working Group (AWG)

The SSA will continue to co-chair, hold, plan, and execute monthly Joint CBRND (JCBRND) Architecture Working Group (AWG) meetings. We will continue mining multi-JPM and multi-JRO-"S" area (SENSE, SHIELD, SHAPE, and SUSTAIN) IT requirements, issues, and opportunities and work them via this body.

Establish a Distributed Common Architecture Development Environment

Most notably, the SSA Architecture Team will continue pushing for a common shared active configuration controlled Enterprise architecture development environment. Currently all architecture development efforts across the JRO-CBRND, Joint Science and Technology Office (JSTO), and JPEO-CBD are standalone, distributed, non-integrated, and manually intensive. For us to produce interoperable and integrated solutions we need to have interoperable and integrated architecture and design environments. It should be possible to leverage existing Service investments (e.g. CADIEView) but requires socialization, education, and ultimately agreement among key participants to share the same integrated development environment.

SSA Introductory Meetings

The SSA Architecture Team will continue supporting SSA Introductory Meetings to the JPMs and JRO "S" areas, and associated follow-ups, and resulting actions. We also hope to initiate a second tier of SSA Introductory Meetings to external organizations which have a critical linkage to CBRN information technology across the CBDP (e.g. Defense Threat Reduction Agency (DTRA), JSTO, Operational Test Authorities (OTAs) and the Test Executive, Department of Homeland Security (DHS), etc.).

JRO-CBRND ICTs

The SSA Architecture Team will continue to support JRO Integrated Concept Team (ICTs) with a particular focus on SHAPE and SENSE meetings, reviews, and issue resolution, as these ICT currently represent the highest content of information technology capabilities.

Cross-COI Enterprise Architectures and Interoperability

The SSA Architecture Team will continue supporting cross Community of Interest (COI) education and collaboration with a particular focus on the CBRN COIs relationship and architecture with the following COIs: Medical/Health, Meteorological and Oceanographic (METOC), Logistics, and Intelligence.

CBRN Data Model Reviews and Working Groups

The SSA Architecture Team will continue to support the key CBRN Data Model Working Groups and reviews as a key presenter and contributor.

Key Net-Centric, Architecture, and CBRN Conferences

Continue to participate in key conferences. Focus will be on conferences which involve DoD Architecture

and/or CBRN and we will always attempt to present/publish as time allows with other priorities.

Internal to JPEO-CBD, but Spanning more than One Program of Record/Enterprise

JPEO-CBD CSA and Software IPT for the JPEO-CBD CSE

In 2005, the SSA Architecture Team made several attempts to liaise with the JPEO-CBD Chief Systems Engineer (CSE), however this position went either unfilled or "acting" for most of the year, which left no point of Software Engineering and Architecture coordination at the JPEO-CBD level across the Enterprise.

Given the naming of a dedicated JPEO-CBD CSE in FY06, the SSA Architecture Team believes it is key to serve as the Chief Software Architect (CSA) for all IT technical issues spanning JPEO-CBD Programs of Record and serving in that capacity for the JPEO-CBD CSE.

We believe that the JPEO-CBD Software (SW) Integrated Product Team (IPT) should serve as a subset of the JCBRND AWG reporting into the JPEO-CBD CSE. But, unlike the JCBRND AWG, the JPEO-CBD SW IPT should focus on IT challenges across JPEO-CBD material solutions and be limited to membership of personnel within JPEO-CBD. The SW IPT Team should have technical representation from every JPM across JPEO-CBD and meet periodically with the CSE and be in alignment with the overarching strategies and initiatives of the CSE, at a minimum, and other JPEO-CBD Directorates as the discussion topic requires.

CBRN Information Technology Architecture (ITA)

Spring-boarding off of the foundation created by JPM IS in the Integrated Architecture for Joint Chemical and Biological Information Systems (IAJCBIS), the SSA Architecture Team will focus on some key components of an overarching IT strategy of what will become the CBRN Information Technology Architecture (ITA). The focus areas are detailed below.

Common Net-Centric Contracts Language and Specifications

The SSA Architecture Team has spearheaded, and will continue to drive for the development, distribution, and requirement of “Net-Ready” JPEO-CBD Enterprise architecture and associated contracts language and specifications that any program in the CBDP containing a software, network, or data component would reuse for building systems that are “net-ready” and “plug-in” to the CBRN Information Systems backbone. We believe it is absolutely critical to provide specific artifacts and direction to developers that distills net-centric policy into language that expresses common tangible and consistent (across programs and efforts) steps to be taken, components to be built, and updated mechanisms with which to test and verify. We will continue to have divergent efforts that do not interoperate and do not align the Enterprise's CBRN IT capabilities with that of the DoD net-centric vision if we do not put it in clear easy to understand writing that can be tested and validated. The major focal points will be:

- Utilization and extension of the CBRN data model for storage, transmission, and receipt of all CBRN data.
- Implementation strategies and plans for implementing the CBRN Data Model in a Service Oriented Architecture (SOA). Creation of a common software repository of services and modules could be reused across the Enterprise with a single point of configuration control. (e.g. Common software that would be used to parse the CBRN eXtensible Markup Language (XML) files based on the CBRN XML Schema Definition (XSD), which would include Java Database Connectivity (JDBC) and support all CBRN communications using XML or common components that arise from the Joint Warning and Reporting Network (JWARN) Component Interface Devise (JCID)-on a-Chip/Holster effort, common sensor drivers and specifications.)
- Common specification and requirement of World Wide Web Consortium (W3C) SOA standards for all connectable devices - common code/services for all. With hooks in our web-services and Information Assurance (IA) common code that can be built in for NCES, and as Core Enterprise Services (CESs) emerge we have a smoother migration to them.
- Specify definition and reuse of common certified security solutions resulting in quicker and cheaper DoD Information Technology Security Certification and Accreditation Process (DITSCAP), DOD Information Assurance Certification and Accreditation Program (DIACAP). IA software framework for all software to be developed and delivered in that can be extended as necessary and which encapsulates the critical security related software that can be lever-

aged by all platforms without them having to worry about the IA details (abstracted security layer between the software and all ports, protocols, registry settings, network access).

- Requiring a common look and feel across all interfaces, whether they are on information systems or sensors. This reduces training time and enables creation of common training packages.
- Specification of how programs link into the overarching JPEO-CBD SSA Help/Support infrastructure and expectations in terms of embedded vice Computer Based Training (CBT).

To be effective, this Common Enterprise Architecture and Net-Centric Contracts Language must be endorsed by JPEO-CBD Acquisition to be flowed to all new-start programs across the JPEO-CBD that have an IT component from time of endorsement going forward. The SSA Architecture Team would be responsible for evolution of common language in concert with evolution of DoD Net-Centric policy and guidance.

Furthermore, the SSA Architecture Team will play an integral role in support and education of the programs that are going to implement this architecture and language as well as review contractor designs and deliverables and provide general technical consultation. This language would also be promulgated to the JRO-CBRND, JSTO, and the Test and Evaluation (T&E) community for utilization to add more detail to capabilities statements in Joint Capabilities Integration and Development System (JCIDS) documents, make Science and Technology (S&T) efforts more easily to integrate into the CBRN IS backbone, and allow the testing community to update their testing strategies to test services in a net-centric environment, respectively.

Common CBRN Software Platform

Standardization of the "Global Information Grid (GIG) IT Components" of the CBRN Sensors and C2/C4ISR host platform drivers which know how to interact with and manage those sensors is paramount to moving DoD CBRN to a true plug and play environment.

The SSA Architecture Team will work primarily with the SSA Data Management Team, JPM IS, JPM Contamination Avoidance (CA), JPM Biological Defense (BD), JPM Guardian, and JPM Chemical Biological Medical Systems (CBMS) to define standard sensor data formats and protocols.

A common core set of services and components should be the result of the JCID-on-a-Chip, Holster, and Joint Vehicle Interface Device (JVID) efforts which could feed multiple CBRN Sensor and Information Systems programs and product lines.

JWARN IRS/CBRN IRS

The SSA Architecture Team is currently responsible for the update and stewardship of the JWARN Interface Requirement Specification (IRS) because it touches many IT components across the CBRN Enterprise.

Currently, the JWARN IRS contains a specification that captures the interface specifications and protocols for each of the legacy and development CBRN sensors only and is really focused only on the "sensor" to C2 platform interfaces and not the host platform interface specifications. However, the IRS does NOT include *common specifications and protocols for future sensors*.

We would like to evolve the JWARN IRS into a "CBRN IRS" that details the common sensor data (resolved to the CBRN Data Model) and associated protocol specification. This IRS would then be required for future sensor manufacturers and host platform interfaces that must communicate with sensors.

Extrapolating off of this example, that also sets the stage for not only how to how to build sensors to plug into CBRN IS, but eventually how to build hazard prediction models to plug into CBRN IS, how to build course of action analysis models, simulators, simulations, calculators to plug into CBRN IS… etc. Ultimately, this leads the way to developing a "CBRN IS Software Development Kit (SDK)" that provides a set of specs and Application Programming Interfaces (APIs) and common services that we can used to configure, compose, and deploy interoperable components vice building from scratch.

In defining the data and the protocol, our intent is to leverage existing standards and standards definitions in progress. We believe in order to be successful, we must look to external communities for reusable standards, mappings, bridges and translators (e.g. Institute of Electrical & Electronics Engineers (IEEE), Organization for the Advancement of Structured Information Standards (OASIS), DHS, NATO, Coalition,

and Intel), to use what is already proven and fielded and extend/update as necessary - do not redevelop, but reuse!

Common Sensor Data Repository

The SSA Architecture Team will push for the establishment of a sensor data repository that will contain configuration controlled sensor interface specifications for all of the sensors in use across the CBDP.

Currently, such a CBRN Sensor Data Repository does not exist. Across the JPEO-CBD Enterprise, we have not yet organized and configuration-controlled the data that we do have in one authoritative library for producers to publish to so that others can utilize it. We would like to create a repository for use by the Enterprise, with the current target for the repository being the JPEO-CBD Integrated Digital Environment (IDE).

The types of information that we would put into the repository would be configuration controlled products and artifacts such as Interface, Data, Protocol Specifications, Performance Specifications, Reusable Drivers, Extensible Stylesheet Language Transformations (XSLT) Translators, CBRN Sensor Emulation Suite and Tools, sensor test data, and the like. The process to manage these baselines would be the JCBRND Configuration Management Plan (CMP).

We have interest from JPM IS, JPM CA, JPM BD, and JPM Guardian on such a repository and all provided positive feedback on our discussions of this during SSA Introductory meetings.

IT Alignment Targets across JPEO-CBD

The SSA Architecture Team sees high value and return on the alignment of major IT efforts across the JPEO-CBD Enterprise, and in particular, between JPM IS Programs of Record and the JPM Guardian Installation Protection Program (IPP). It is critical that we define the Guardian/JWARN interfaces and technology baselines in a way that we can have as many common information technology components as possible. The best value to the Warfighter and the Taxpayer should be to provide a common DoD CBRN Information Technology baseline deployed at our Continental United States (CONUS) and Outside the Continental United States (OCONUS) bases and to the extent possible the same baseline (goal) but certainly interoperable (requirement) with CBRN IT capability that deployed forces uses as well as same baseline (goal) but certainly interoperate (requirement) with DHS/Homeland Security (HLS). This common baseline can serve as a model not only for DoD but also for DHS. Per request of JPM Guardian, the SSA Architecture Team will serve as C4I Team/Expert on an as-needed basis with a focus on the following:

- Work JPM IS and JPM Guardian IPP Architecture/Interface Boundaries and technology sharing.
- Support the Guardian Requirements Determination Analysis (RDA) Plan development specifically in the areas of information systems and information management
- Push JPM IS and JPM Guardian IPP Architecture forward to DHS for reuse
- Represent Guardian in the capacities of C2, C4ISR, and IT
- Planned capabilities of JWARN, Joint Effects Model (JEM), and Joint Operational Effects Federation (JOEF) (Integrated Information Management System (IIMS) transition a focus) that would be ready for fielding to Guardian
- Look forward to setting up mirrored West and East Coast labs which would allow us to start working towards shared product and infrastructure baseline for JWARN and Guardian Plus going forward.

CBRN Emulation Suite

Another significant payoff can come from having a common validated CBRN Emulation Suite which will allow for consistent sensor emulation/evaluation/testing and provide software which provides scripting, playback, and analysis. The JWARN program has produced a set of robust sensor emulators that are being used to test the JWARN program of record in a distributed environment. The emulators included all JWARN Increment 1 sensors and Increment 2 sensors are currently being planned.

In addition to providing emulators that can be remotely controlled and configured with complex testing and training scenarios, the emulator suite contains full scenario scripting and record/playback with information captured in a consistent manner that Verification, Validation, and Accreditation (VV&A) (test teams) can use to more cost effectively and consistently validate and store the results of tests. This platform can be utilized and extended to support S&T initiatives for evaluating new sensors technologies and

platforms in a simulated and networked environment and can also be utilized by individual sensor development programs to aid in analysis and testing of stand alone sensors.

Helping Program Define Services in a Service Oriented Architecture (SOA)

The SSA Architecture Team will assist programs needing help in the engineering process for:

- Defining services in an SOA
- Ensuring that the services map to data products per the CBRN Operational View (OV)-7
- Deployment considerations and strategies for services
- Specification of meta-data which describe those services to facilitate search/discover
- Registration of services with DoD authoritative sources

Science and Technology (S&T) Consultation and Tracking

The SSA Architecture Team will continue to track potentially high payoff S&T information technology pilots and initiatives, reviewing benefits and impact across programs, and providing recommendations to leadership and programs with respect to transition, impact, and migration strategy.

We will focus on existing standards and specifications and how we move from those to those that will be supportive of the capability that the new S&T provides. In particular we are currently tracking and providing consultation to (and will continue to so in the coming year), the following S&T projects:

Shared HLS/ HLD COP

- Shared HLS/ Homeland Defense (HLD) Common Operational Picture (COP) - with a focus on common reusable modules that allow JWARN and IPP to share information which also becomes a model for interoperability with DHS.
- IIMS and its use in JOEF and SignalFire - with an eye towards common incident management capabilities (via JOEF).

CBRN/Medical COI

- CBRN/Medical COI sharing with a focus on SignalFire to Medical for lessons learned but with a strategic eye towards the larger Enterprise-to-Enterprise models and interfaces which do not exist to allow net-centric publish and subscribe interaction between the CBRN and Medical communities.

Collaboration Tools

- Collaboration Tools - with a focus on tools that will provide capabilities for information management, dissemination, and granular control over which information is released and available to whom and for what and based on what events.

JCID-on-a-Chip/Holster

- JCID-on-a-Chip/Holster and a Common CBRN Sensor Data and Protocol - in particular, the SSA Architecture Team refers to this as "Net-Ready CBRN Sensors" - a key focus area will be on the specification of a Common CBRN Sensor Platform – *a fully encapsulated net-centric reusable software service that communicates securely via the CBRN XML Schema using a common protocol…* All CBRN sensor data that can be transmitted, received, and stored should use the CBRN Data Model as the basis for data representation and communicate via the derivative XML Schema. Specification of sensor data entities and attributes in the CBRN Data Model is underway now, being lead by the JRO-CBRND SHAPE and the JPM IS Data Team. We believe that standardization of the interfaces across all CBRN sensors/devices is critical for miniaturization, interoperability, and a common reusable set of components.
- For net-centric sensors to be successful, the interface standards must be widely accepted. To enable such wide acceptance, the standards used for these services and the technologies that implement those standards should meet the following criteria: 1) A sensor should be able to service requests from any client regardless of the platform on which the client is implemented, and 2) A client should be able to find and use any sensor regardless of the service's implementation details or the platform on which it runs. Such a software defined sensor platform that exploits network connectivity to perform its mission in support of diverse Warfighter needs directly supports and encapsulates the DoD net-centric strategy. We must bring "net-

centricity" to sensors via common reusable IT components via a scaleable plug-and-play architecture securely operable over the Internet.

- We ultimately want to focus on producing sensors that integrate on-demand into system and common operational picture by the Warfighter via JWARN. We want to have future sensors embed this common sensor platform a speak by the rules of a common sensor protocol using 'words' from the CBRN XML Schema data… they will be web-service based (XML over Simple Object Access Protocol (SOAP) over Web Services Descriptive Language (WSDL)) and provide true plug-and-play on the fly as we do with peripherals in our personal computers and personal wireless devices in everyday life.

Reusable Accreditable IA Architectures and/or Components

- Any IA efforts which work towards common reusable accredited IA components that can be reused by the programs to reduce the time and cost and duplicative efforts associated with System Security Authorization Agreement (SSAA) and Authorities to Operate (ATOs) and Interim ATOs (IATOs).
- To provide the Warfighter with a mobile wireless secure set of capabilities going forward, IA can not continue to be hard-coupled to and drive the program or architecture - it must be abstracted out as a reusable set of processes and components that any components which must connect to the GIG can reuse - this is paramount.

JPM IS Technical Meetings

The JPEO-CBD SSA is required to help facilitate the extension of the JPM IS integrated architecture and specifications to the Enterprise. The JPEO-CBD SSA architecture Team will continue to align with and participate in JPM IS Architecture Team technical meetings and reviews and look for reusable concepts and components and solutions which can be taken to other programs in JPEO-CBD.

Attend JPM and JRO-CBRND ICT Conferences and Meetings

SSA Architecture will stay abreast of current and new initiatives across the JPEO-CBD JPMs by attending key JPM conferences and JRO-CBRND ICT meetings.

CBRN Information Technology Integration and Evaluation lab

We believe that the SSA Architecture Team needs to spearhead a push for the benefit of having a CBRN Information Technology Integration and Evaluation Lab in San Diego, CA (at JPM IS), in Aberdeen, MD (location TBD), and at Fort Belvoir (location TBD).

This lab would spring from the current JPM IS JIC laboratory. The JIC would maintain the CM baseline for the set of information systems and C2/C4ISR platforms/software and the three sites would mirror one another in these baselines. As Base Realignment And Closure (BRAC) unfolds, the key focal points of CBRN development will be Aberdeen, Fort Belvoir, and San Diego. Having synchronized integration labs will allow Enterprise level user assessments, interoperability testing, integration, testing and validation, and S&T experimentation and concept evaluation. Having such a lab would facilitate sharing of resources (e.g. networks, software, servers, and emulators/simulators) as well as lend itself well to distributed exercises and training.

JPM/PROGRAM-SPECIFIC SUPPORT

SmartMarker Transition to JPM IS

The SSA Architecture Team will support technical aspects of SmartMarker transition to JPM IS and integration of SmartMarker messages into JWARN Warning capability on C2 nodes. We will engage and coordinate with FCS, which has marking requirements as well.

2006 ~ Data Management Team
The Way Forward

Data Model

The Data Management Team will continue to support the advancement and refining of the CBRN Data Model in 2006. Their efforts continued with a CBRN Data Model Working Group Technical Review in Jan 2006. The review of Data Model v1.3 helped to address the ongoing refinement of the Data Model representations for the CBRN community. The next Data Model release, version 1.4, is targeted for April 2006.

The Data Management Team will continue to work with the JRO on subsequent releases of the Data Model to ensure that the service representatives provide feedback. That feedback will be integrated into the next release. They will also continue to support implementation efforts of NCES and the CBRN Service Oriented Architecture.

JPM IS CBRN Data Initiative

The Data Management Team will continue to support and promote the JPM IS CBRN Data Initiative by continuing to act as a liaison between the Data Initiative and:

- JEM, JOEF and JWARN
- JPEO-CBD Joint Project Managers (JPEO-CBD JPM)
- JPEO-CBD Joint Logistics Advisory Council (JLAC)
- Joint CBRN Architectural Working Group (JCBRN AWG)
- Joint Requirements Office (JRO)

The Data Team will also continue to provide direct support to the Data Initiative by generating the CBRN XML Schema for each Data Model release.

Net-Centricity

The Data Management Team will continue to move toward net-centricity through NCES. In 2006, when possible, they will monitor and participate in the maturing activities of the DISA NCES. Continuing their activity in 2005, they will continue to participate in Discovery Metadata working groups, including those listed below. This will allow them to continue to build on their understanding of how data and web services will be discovered within the NCES.

- DoD Metadata Discovery Specification (DDMS)
- Intelligence Community Metadata Working Group (IC MWG)
- DHS Metadata Working Group
- Geospatial Working Group (GWG)

Community of Interest (COI) Support

The Data Management Team will continue to participate in the COI Forum. This will allow them an opportunity to meet and share information with multiple COIs. This activity is key to establishing a Concept of Operations (CONOPS), architectural understanding and defining/developing web services to provide a smooth exchange of relevant data between two emerging COIs.

The Data Management Team will pursue establishing a CBRN COI Conference, to brief COI activities and provide a forum for collaboration on CBRN issues.

Finally, the Data Management Team will continue to develop interactions between the CBRN COI and other COIs, notably:

- Measurement and Signals Intelligence (MASINT)
- Department of Homeland Security (DHS) CBRN Science and Technology Community
- Health/MHS COI and Medical Information System programs
- Meteorological and Oceanographic (METOC)

2005

2006 ~ Information Assurance Team

The Way Forward

The IA Team will continue to provide professional Certification and Accreditation (C&A) support to JPEO-CBD JPMs in 2006.

Transition to DIACAP
The IA Team is tracking the planned transition of DITSCAP to the DOD Information Assurance Certification and Accreditation Program (DIACAP). The Team is trying to acquire DITSCAP SSAA approval for all efforts in progress before the transition to DIACAP.

IA Working Group
The IA Team is considering establishment of a JPEO-CBD-wide IA Working Group that would fit under the auspices of the JPEO-CBD System Engineer. These would provide all JPM personnel to have interactive discussions with the SSA IA team members on various IA subjects. This information should provide JPM personnel with knowledge concerning the protection of their systems.

Certification of Networthiness (CoN) Documentation
The IA Team will develop CoN documentation for JWARN, JEM, and JOEF as required by the Army and Air Force in order to be utilized on their respective enterprise networks.

Wireless Requirements
The SSA IA Team will work with the National Security Agency (NSA) to determine wireless requirements for Increment I and II. This will require submitting a Cross Domain Solution (CDS) ticket request to acquire the approval for the wireless configuration.

Authority to Operate
The SSA IA team is working on several efforts that will be acquiring either full Approval to Operate (ATO) accreditation or Interim Approval to Operate (IATO) for JPEO-CBD programs in 2006.

2005

2006 ~ Integration & Test Team

The Way Forward

In 2006, the Integration and Test (I&T) Team will continue to support enterprise wide efforts in arriving at an overarching M&S strategy. This would allow the application of M&S lessons learned and reuse strategies across all the JPMs.

Particular emphasis will be placed on:

- Modeling and Simulation (M&S) liaison to JPEO-CBD Chief Test and Evaluation (T&E).
- M&S liaison to Project Director of Test Equipment Strategy and Support (PD TESS).
- Establishment of the M&S Center of Excellence for JPEO-CBD.
- M&S support to Science and Technology (S&T) efforts as formalized in the Technology Transition Agreements (TTAs).
- M&S representation to the SENSE, SHAPE, SHIELD and SUSTAIN Integrated Concept Teams (ICTs).
- M&S support to all Joint Project Managers (JPMs) for M&S strategy development and M&S execution.

JPEO-CBD M&S VV&A

As a part of the I&T Team's continuing commitment to M&S, M&S Verification, Validation, and Accreditation (VV&A) will continue to be central to our efforts. We will provide support to all the JPMs for the development of VV&A requirements as well as oversight of the actual VV&A processes should that be requested.

The JPEO-CBD M&S VV&A Guidelines will be updated to include any emerging joint requirements as well as inputs from our Canadian and UK partners. Upon JPEO approval of revisions, the updated versions will be again presented to the members of International Task Force (ITF) 49 and recommended for adoption as a standard.

Cross COI Efforts

The I&T Team will continue to support cross Community Of Interest (COI) efforts, particularly with the Medical community. This activity remains a key to establishing an integrated Concept of Operations (CONOPS) and providing a smooth exchange of relevant data between the Chemical Biological Radiological and Nuclear Defense (CBRND) and other COIs. The Pilot Project is central to this effort as it will provide a template for the sharing of data across COIs in a net-centric environment.

2006 ~ Standards & Policy Team
The Way Forward

ASA (ALT) Support

In 2006, the S&P Team will continue regular support to the Assistant Secretary of the Army for Acquisition Logistics and Technology (ASA (ALT)). The S&P Team will begin the process to of identifying and collecting metrics for the improvement of the acquisition of software intensive systems. They will also develop a strategy for preparing a JPEO-CBD Software Acquisition Improvement Plan to supports ASA (ALT)'s objective to dramatically improve the acquisition of software intensive systems. Preparation is only the first step, followed by the even more important steps of coordination, institutionalization, maintenance, tracking, annual update, and reporting of results to ASA (ALT).

SEI Training

The S&P Team will coordinate training for key staff personnel on software product lines, being offered by the Software Engineering Institute (SEI), Carnegie Mellon University. Software product lines is a reuse strategy that takes economic advantage of commonality among core assets such as requirements analyses, architecture designs, documentation, test strategies, models, work plans, schedules, procedures, etc. Documented case studies have shown significant savings in cost and time using product line development and implementation for materiel developers of multiple similar products. Training for the ASA (ALT) Military Deputy (MILDEP) Senior Leadership Forum will also be coordinated.

S&P Repository

The S&P Team will continue refining and growing the S&P Repository, and establishing and strengthening the internal and external relationships needed to support JPEO-CBD JPMs that must comply with the requirements for jointness, interoperability and supportability. In the S&P Repository, the S&P Team will implement Link Persistence, ensuring that linked content can still be accessed even if it is moved, improving the reliability of the Repository.

ISP and SEP

The S&P Team will work to produce a JPEO-CBD information Support Plan (ISP) Standard Operating Procedure (SOP). They will also continue to provide support to move System Engineering Plans (SEPs) or ISPs through JPEO-CBD, Chairman of the Joint Chiefs of Staff (CJCS), ASA (ALT), and Office of the Secretary of Defense (OSD) review processes, as required.

Alignment with Defense Threat Reduction Agency (DTRA) Chem-Bio Modeling and Simulation (M&S) Area

The 2006 Science and Technology for Chemical Biological Information Systems (S&T CBIS) Conference agenda will help guide the direction of Joint S&T Information Systems efforts in Fiscal Year (FY) 07, so greater attention will be focused on presentations and research opportunities that provide cross-area information integration. In that same vein, we are more closely aligning with DTRA's M&S Capability Area Program Officer to assist in determining information system impacts of potential new research projects, in FY06, FY07 and FY08. We are also assisting them on the development of a technology roadmap that will guide their research choices over the next five to ten years.

Alignment with JPEO-CBD

Our plan is to visit each one of the Joint Program Managers (Contamination Avoidance, Collective Protection, Individual Protective Equipment, Decontamination, Chemical Biological Medical Systems, Guardian, and Information Systems), in order to provide guidance, direction, and coordination in the promulgation of interoperability standards for information systems (such as access to the Data Reference Model and the ability to work within a service oriented architecture) throughout the Chemical-Biological Defense community.

Alignment with Joint S&T Office for Chemical and Biological Defense (JSTO-CBD)

We are in the process of establishing a community-wide standard operating procedure for the S&T area; more specifically with ongoing project documentation, such as Technology Development Strategies (TDSs), Technology Evaluation Plans (TEPs), and Technology Transfer Agreements (TTAs). This will provide a repeatable process for updates and efficient inclusion of new project documentation over the next several years. Our intent is to also gain familiarity with the JSTO-funded 6.1 research efforts, in order to provide guidance on development of capabilities that can transition more quickly to 6.2 tracks (not necessarily, to PORs, as 6.1 research is designed to be more unique and high risk in its goal.) Finally, our FY06 goal is the solidification of the transition process for all 24 of the 6.2 and 6.3 projects destined for the three PORs.

Alignment with Network Centric Enterprise Services(NCES) and the GIG (Global Information Grid)

As Office of the Secretary Defense (OSD) continues to roll out the NCES concept in support of the GIG, it is our intent to provide guidance to our PORs on their integration to this new information-centric environment. We will focus on the initial instantiation of the NCES model, by participating in the Defense Information Systems Agency (DISA)-sponsored source selection for collaboration services, one of the nine core NCES services. Continuing involvement in the Collaboration Interoperability Working Group provides unique and early insight into the issues that effect Joint Command and Control with regard to systems that support multiple enclaves conducting collaborative activities in support of their command and control functions.

Discovery and Support of Innovative Methods for Interoperability

Two new initiatives that are of immediate interest include data sharing with the medical communities of interest (COI) and the concept of net-ready sensors. The first is an effort that would result in a logical data model, eXtensible Markup Language (XML) schema, and established interoperability rules between the medical namespace and the Chemical, Biological, Radiological, and Nuclear (CBRN) namespace. This would facilitate interoperability between the various COIs, allowing them to achieve the goal of a net-centric data strategy. The second concept, net-ready sensors, would focus on interoperability between legacy sensors and new wireless technology, improving the management of chemical-biological sensors in a net-centric architecture.

2005

2006 ~ Help Desk Team
The Way Forward

The SSA Help Desk Team will build on momentum gained in 2005 to continue to refine Chemical and Biological Defense Information Technology (CBD IT) Help Desk services and to bring additional Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) programs on to the Help Desk in 2006 and beyond.

Help Desk Roadshows
The Help Desk Team will make a series of visits to Joint Program Managers (JPMs) to advise them of CBD IT Help Desk availability, capabilities, and cost. During these visits, the Help Desk Team will also gather information from the JPMs on their programs to enable effective planning of support.

The majority of the growth expected for the CBD IT Help Desk will come from JPEO-CBD programs which use the CBD IT Help Desk to meet their Milestone support requirements. Many of these programs are members of families of systems and as such will benefit from a consolidation of the Help Desk services for all programs within that family. The ability to coordinate the IT support between these programs is a significant capability the CBD Help Desk provides that they could not easily or cost effectively institute themselves.

The first programs that the CBD IT Help Desk will be presented to are JPM Individual Protective Equipment's Joint Service Mask Leakage Tester (JSMLT) and JPM Guardian's Installation Protection Program (IPP).

Help Desk Pricing
The Help Desk Team established the first year cost for CBD IT Help Desk Level I services at $50,000, which covers development costs for both the Remedy database and the Program-specific web page, and the first year of service. In 2006, the Help Desk team will be establishing the pricing for follow-on years of support, which is expected to be structured on call volume. The Help Desk Team will negotiate the best possible pricing for these services, ensuring they are cost efficient for the supported programs. The pricing of Level II Help Desk services will also be established.

Business Rules
JPEO-CBD programs interface with many programs external to the JPEO-CBD Enterprise, including databases from which program information is drawn and the C4I systems that host the JPEO-CBD programs. The Help Desk Team assists in establishing necessary interfaces with such external programs through the development of Business Rules. Business Rules are basically a Memorandum of Understanding between the CBD IT Help Desk, the applicable JPM, and an external program defining how reported problems will be handled and by whom. In 2006, the Help Desk Team will develop Business Rules for programs currently supported by the CBD IT Help Desk and will also develop templates that can be used for rapid development of Business Rules for new programs joining the Help Desk.

2006 ~ Project Support Team
The Way Forward

The Project Support Team will continue to provide CM, QA, and management support services to all SSA Teams in 2006. Specific goals include:

JCBRND CMP
The SSA CM Team will shepherd the Joint Chemical, Biological, Radiological, and Nuclear Defense (JCBRND) CMP through the approval process in early 2006. Subsequently, the CM Team will coordinate the standing up of the JCBRND CCB.

Standard CMMI Assessment Method for Process Improvement (SCAMPI)
The SSA QA Team will continue to lead preparations for the informal May 2006 SCAMPI B evaluation, and if scheduled, the August 2006 formal SCAMPI evaluation. This will involve defining and documenting of processes, development of various documentation, and training of SSA personnel.

JPEO-CBD Integrated Digital Environment (IDE)
SSA Project Support personnel will continue to develop and refine the JPEO-CBD SSA IDE, including populating Public Side repositories. They will also develop a SSA-specific IDE User Guide to ensure the website can be efficiently used by SSA personnel.

Acronyms and Glossary

A

AAA – Army Audit Agency
AAG – ASSIP Action Group (AAG)
ABCS – Army Battlefield Command Systems
ACTD – Advanced Concept Technology Demonsration
API – Application Programming Interface
APM – Acquisition Program Manager
ASA (ALT) – Assistant Secretary of the Army for Acquisition Logistics and Technology
ASD (NII) – Assistant Secretary of Defense for Networks and Information Integration
ASEF – Army PEO Systems Engineering Forum
ASSIP – ASA (ALT) Army Strategic Software Improvement Program
ATO – Authority to Operate
AWG – Architecture Working Group

B

BD – Biological Defense
BFT – Blue Force Tracking

C

BRAC – Base Realignment And Closure
C&A – Certification and Accreditation
C2 – Command and Control
C2IEDM – Command and Control Information Exchange Data Model
C2PC – Command and Control Personal Computer
C4I – Command, Control, Communications, Computers and Intelligence
C4ISR – C4I, Surveillance and Reconnaissance
CA – Contamination Avoidance
CANUKUS – Canada, United Kingdom, and United States
CAPO - Capability Area Program Officer
CBD – Chemical and Biological Defense
CBDP – Chemical Biological Defense Program
CBIS – Chemical and Biological Information Systems
CBRN – Chemical, Biological, Radiological, and Nuclear
CBRND – CBRN Defense
CBT – Computer Based Training
CBX – Chemical Biological X
CCA – Clinger-Cohen Act
CCB – Change Control Board
CDS – Cross Domain Solution
CES – Core Enterprise Services
CM – Configuration Management
CMBS – Chemical Biological Medical Systems
CMMI – Capability Maturity Model Integration
CMP – Configuration Management Plan
CoBRA – Chemical Biological Response Aid
COI – Community of Interest
COP – Common Operational Picture
CSA – Chief Software Architect
CSE – Chief System Engineer
CSR – Customer Service Request
CT&E – Certification, Test and Evaluation

D

DAA – Designated Approval Authority
DASD – Deputy Assistant Secretary of Defense
DDMS – DoD Discovery Metadata Specification
DHS – Department of Homeland Security
DIACAP – DoD Information Assurance Certification and Accreditation Program

DISN – Defense Information Systems Network
DITSCAP – DoD Information Technology Security Certification and Accreditation Process
DMWG – Data Model Working Group
DoD – Department of Defense
DoDAF – DoD Architecture Framework
DSAWG – DISN Security Accreditation Working Group
DT – Development Test
DTRA – Defense Threat Reduction Agency

F

FAQ – Frequently Asked Question
FCS – Future Combat Systems
FHP&R – Force Health, Protection and Readiness

G

GAO – General Accounting Office
GCCS-J – Global Command and Control System - Joint
GIG – Global Information Grid
GWG – Geospatial Working Group

H

HA – Health Affairs
HLD – Homeland Defense
HLS – Homeland Security
HPAC – Hazard Prediction and Assessment Capability
HSS – Health Services Support

I

I&I – Installation and Integration
I&T – Integration and Test
IA – Information Assurance
IAJCBIS – Integrated Architecture for Joint Chemical and Biological Information Systems
IATO – Interim ATO
ICIDS – Integrated Commercial Intrusion Detection System
ICMWG – Intelligence Community Metadata Working Group
ICT – Integrated Concept Team
IDE – Integrated Digital Environment
IEEE – Institute of Electrical and Electronics Engineers
IIMS – Integrated Information Management System
IPE – Individual Protective Equipment
IPP – Installation Protection Program
IPR – In Progress Review
IPT – Integrated Product Team
IRS – Interface Requirements Specification
IS – Information Systems
ISP – Information Support Plan
IT – Information Technology
ITA – Information Technology Architecture
ITF – International Task Force
IV&V – Independent Verification and Validation
IWG – Interagency Working Group
IWMDT – Integrated WMD Toolkit
IWT – Integrated Working Team

J

JB2GU – JLIST Block 2 Glove Upgrade
JBAIDS – Joint Biological Agent Identification and Diagnostic System
JC2 – Joint Command and Control
JC3IEDM – Joint Consultation Command and Control Information Exchange Data Model
JCBRND – Joint CBRND
JCCE – Joint CBRN Conference and Exhibition

JCID – JWARN Component Interface Device
JCIDS – Joint Capabilities Integration and Development System
JDBC – Joint Database Connectivity
JEM – Joint Effects Model
JIC – JWARN Initial Capability
JLAC – JPEO-CBD Joint Logistics Advisory Council
JOEF – Joint Operational Effects Federation
JPACE – Joint Protective Aircrew Ensemble
JPEO – Joint Program Executive Office
JPM – Joint Project Manager
JRO – Joint Requirements Office
JSLIST – Joint Service Lightweight Integrated Suit Technology
JSLSCAD – Joint Service Lightweight Standoff Chemical Agent Detector
JSMLT – Joint Service Mask Leakage Tester
JSSKC – Joint Systems Support Knowledge Center
JSTO – Joint Science and Technology Office
JTCW – Joint Tactical COP Workstation
JWARN – Joint Warning and Reporting Network
JVID – Joint Vehicle Interface Device

M

M&S – Modeling and Simulation
MAGTF – Marine Air Ground Task Force
MASINT – Measurement and Signals Intelligence
METOC – Meteorological and Oceanographic
MHS- Medical Health Systems
MIP – Multilateral Interoperability Programme
MOA – Memorandum of Agreement
MOPP – Mission Oriented Protective Posture
MOU – Memorandum of Understanding
MSAT – Medical Situational Awareness in Theater

N

NATO – North Atlantic Treaty Organization
NBC - Nuclear, Biological and Chemical
NBC-A – NBC-Analysis
NBC-RPM –NBC Reporting, Plotting and Modeling
NCES – Net-Centric Enterprise Services
NCOW – Net-Centric Operations and Warfare
NESI – Net-centric Enterprise Solutions for Interoperability
NG – Northrop Grumman
NSS – National Security Systems

O

OASIS Organization for the Advancement of Structured Information Standards
ORD – Operational Requirements Document
OSD – Office of the Secretary of Defense
OT&E – Operational Test and Evaluation
OTA – Operational Test Authority
OV – Operational View

P

PACOM – Pacific Command
PCR – Product Change Request
PEAC-WMD – Palmtop Emergency Action for Chemicals – Weapons of Mass Destruction
PEO – Program Executive Office
PM – Program Manager
PMO – Program Management Office (or Officer)
PPP – Program Protection Plan

Acronyms and Glossary

R

QA – Quality Assurance
RDA – Requirements Determination Analysis
RDBMS – Relational Database Management System
RM – Reference Model

S

S&P – Standards and Policy
S&T – Science and Technology
SCAMPI – Standard CMMI Assessment Method for Process Improvement
SCG – Security Classification Guide
SDK – Software Development Kit
SEI – Software Engineering Institute
SEP – System Engineering Plan
SME – Subject Matter Expert
SOA – Service Oriented Architecture
SOAP – Simple Object Access Protocol
SOP – Standard Operating Procedure
SOW – Statement Of Work
SPAWAR – Space and Naval Warfare
SSAA – System Security Authorization Agreement
SSC – SPAWAR Systems Center
SSIMP – Strategic Software Improvement Master Plan
STANAG – Standardization Agreement

T

T&E – Test and Evaluation
TDS – Technology Development Strategy
TEP – Technology Evaluation Plan
TMA – TRICARE Management Activity
TOR – Terms of Reference
TTA – Technology Transfer Agreement

U

UK – United Kingdom

V

VV&A – Verification, Validation, and Accreditation

W

W3C – World Wide Web Consortium
WMA – Warfighter Mission Area
WMD – Weapon of Mass Destruction
WSDL – Web Services Descriptive Language

X

XML – eXtensible Markup Language
XSD – XML Schema Definition
XSLT – Extensible Stylesheet Language Transformations

Orgs

<u>Organizations</u>
ASA (ALT) – Assistant Secretary of the Army for Acquisition Logistics and Technology
DHS – Department of Homeland Security
DTRA – Defense Threat Reduction Agency
JPEO-CBD – Joint Program Executive Office for Chemical and Biological Defense
JPM BD – JPM Biological Defense
JPM CA – JPM Contamination Avoidance
JPM IPE – JPM Individual Protective Equipment
JPM IS – JPM Information Systems
JRO-CBRND – Joint Requirements Office for CBRND
JSMLT – Joint Service Mask Leakage Tester
JSTO – Joint Science and Technology Office
NATO – North Atlantic Treaty Organization

Acronyms and Glossary

Orgs (cont)

OSD – Office of the Secretary of Defense
PACOM – Pacific Command
SSA – Software Support Activity
SSC San Diego – SPAWAR Systems Center San Diego
SSKC – Systems Support Knowledge Center

Prgms

Programs
C2PC – Command and Control Personal Computer
CoBRA – Chemical Biological Response Aid
GCCS-J – Global Command and Control System - Joint
HPAC – Hazard Prediction and Assessment Capability
ICIDS – Integrated Commercial Intrusion Detection System
IPP C4I – Installation Protection Program C4I
IWMDT – Integrated WMD Toolkit
JB2GU – JLIST Block 2 Glove Upgrade
JBAIDS – Joint Biological Agent Identification and Diagnostic System
JEM – Joint Effects Model
JIC – JWARN Initial Capability
JOEF – Joint Operational Effects Federation
JPACE – Joint Protective Aircrew Ensemble
JSLIST – Joint Service Lightweight Integrated Suit Technology
JSLSCAD – Joint Service Lightweight Standoff Chemical Agent Detector
JTCW – Joint Tactical COP Workstation
JWARN – Joint Warning and Reporting Network
NBC-A – NBC-Analysis
NBC-RPM – NBC Reporting, Plotting and Modeling
PEAC-WMD – Palmtop Emergency Action for Chemicals – Weapons of Mass Destruction

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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-01-0188

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to Department of Defense, Washington Headquarters Services Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

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1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
12–2005	Final	1 January to 31 December 2005

4. TITLE AND SUBTITLE

JPEO-CBD SOFTWARE SUPPORT ACTIVITY ANNUAL REPORT 2005

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHORS

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5e. TASK NUMBER

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8. PERFORMING ORGANIZATION REPORT NUMBER

TD 3217

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

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10. SPONSOR/MONITOR'S ACRONYM(S)

SPAWAR

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

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14. ABSTRACT

This report provides an annual historical record of the efforts performed by the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) Software Support Activity (SSA) for the Calendar Year 2005. The JPEO-CBD SSA is managed by the Space and Naval Warfare Systems Center San Diego and is directed by the Space and Naval Warfare Systems Command. The SSA is a team composed of government and contractor agencies that provide enterprise support in the key tenets of net-centric operations to U.S. Department of Defense chemical and biological programs.

15. SUBJECT TERMS

Mission Area: Information Technology

software support	net-centricity	interoperability	information assurance
chemical/biological defense	data modeling	integration	joint operations

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			D. R. Hardy
U	U	U	UU	72	19B. TELEPHONE NUMBER *(Include area code)* (619) 553–5410

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